REQUEST FOR MEDIUM-SIZED PROJECT APPROVAL

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT IDENTIFICATION

Project Title:	REDUCING ENVIRONMENTAL HEALTH IMPACTS OF HARMFUL POLLUTANTS IN AFRICA REGION		
Country(ies):	Africa	GEF Project ID:[1]	5349
GEF Agency(ies):	WB (select) (select)	GEF Agency Project ID:	P146477
Other Executing Partner(s):	WB	Submission Date:	2014-10-20
GEF Focal Area(s):	POPs	Project Duration (Months)	18
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐		
Name of parent program:	NA	Agency Fee ($)	190,000

A. FOCAL AREA STRATEGY FRAMEWORK AND PROGRAM[2]:

Focal Area Objectives/programs	Focal Area Outcomes	Trust Fund	(in $)	
			GEF Project Financing	Co-financing
CHEM-1	1.5. Country capacity built to effectively phase out and reduce releases of POPs	GEFTF	1,000,000	1,000,000
CHEM-3	3.1. Country capacity built to effectively manage mercury in priority sectors	GEFTF	1,000,000	1,000,000
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
	Total project costs		2,000,000	2,000,000

B. PROJECT FRAMEWORK

Project Objective: To improve a shared understanding of current trends in environmental health associated with chemicals waste management in Artisanal and Small scale Gold Mining and unregulated waste dump sites in sub-Saharan Africa, and develop a regional collaborative platform to address it.

Project Components	Financing Type[3]	Project Outcomes	Project Outputs	Trust Fund	(in $)	
					GEF Project Financing	Confirmed Co-financing
Component 1: Support Analytical Studies and Regional Strategies to identify and address the risks associated with chemicals and waste management	TA	Improved understanding of environmental health implications of harmful chemicals and waste in Africa and options for risk management.	**Country Reports** mapping exposure to contamination across key countries in the Africa region (8 countries Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria) **Report with detailed site investigation of environmental health and socio-economic** consequences of toxic chemicals (2-3 Countries out of 8 countries above)	GEFTF	1,300,000	700,000

[1] Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.
[2] When completing Table A, refer to the excerpts on *GEF 6 Results Frameworks for GETF, LDCF and SCCF*.
[3] Financing type can be either investment or technical assistance.

			Awareness raising program developed on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste.			
Component 2: Building Partnership within the Africa region for elimination and reduction of harmful chemicals and waste	TA	Increased alliances/partnerships with African countries to address the risks associated with chemicals and waste management	**Regional Alliance established with Environment Regulators and Mining Institution** for policy dialogue in 8 countries (Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria). **Regional Alliance established with Scientific and Sector Institutions** to analyse environmental health risks and socio-economic impacts **Alliances established with other development partners, such as UNIDO, UNEP, WHO etc**. to prepare inventory of contaminated sites and develop institutional capacity	GEFTF	250,000	1,000,000
Component 3: Regional Program Development	TA	A regional collaborative program to address environmental health risks developed	Funding proposal for a larger regional program to mainstream environmental health aspects of chemicals, developed through a Global alliance/partnership for Africa to identify risks and develop approaches for reduction of harmful chemicals through dialogues, workshops and pilot interventions.	GEFTF	450,000	300,000
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
			Subtotal		2,000,000	2,000,000
			Project Management Cost (PMC)[4]	(select)	0	0
			Total project costs		2,000,000	2,000,000

If Multi-Trust Fund project :PMC in this table should be the total and enter trust fund PMC breakdown here ( )

[4] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

C. SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Co-financing letter is attached.

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount ($)
GEF Agency	WB-DGF	Grant	2,000,000
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
Total Co-financing			2,000,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee [a] (b)	Total (c)=a+b
WB	GEF TF	Regional	Chemicals and Wastes	POPS and Mercury	2,000,000	190,000	2,190,000
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
Total Grant Resources					2,000,000	190,000	2,190,000

a) Refer to the Fee Policy for GEF Partner Agencies.

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[5]

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	*ha*
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	*ha*
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	Number of freshwater basins
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	Percent of fisheries, by volume
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO_{2e} mitigated (include both direct and indirect)	metric tons
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	*metric tons*
	Reduction of 1000 tons of Mercury	*metric tons*
	Phase-out of 303.44 tons of ODP (HCFC)	*ODP tons*
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	Number of Countries: *6*
	Functional environmental information systems are established to support decision-making in at least 10 countries	Number of Countries: *6*

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund) in Annex B.

Non applicable

[5] Provide those indicator values in this table to the extent applicable to your proposed project. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and/or SCCF.

PART II: PROJECT JUSTIFICATION

A. Project Overview

*A.1. **Project Description**. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed.*

1. **The Environmental health implications due to chemical pollutants requires an integrated approach.** There are many global and regional initiatives and conventions , including those negotiated by the UN that highlight attention to the economic costs of environmental effects due to chemicals. VOCs (Volatile Organic Compound) and mercury emissions alone account for 5.7 to 13 percent of the total annual costs in ecosystems and biodiversity losses. Apart from significant environmental costs, as per a recent 'Cost of Inaction' report by UNEP (2013), Chemicals led to 2.27 million deaths, which is higher compared to diarrheal diseases (2.16 million deaths), HIV/AIDS (2.04 million deaths), and Road traffic accidents (1.27 million deaths). However, multiple and fragmented approaches to deal with specific chemicals at a time have not yielded most effective results given a perceived fracturing of environmental health agenda.

2. **Minamata convention presents an opportunity to engage at regional level.** The recent global treaty to protect human health and the environment from the adverse effects of mercury (i.e. UNEP's Minamata Convention on Mercury) provides an opportunity to catalyze policy reforms on how a toxic compound can be used and managed in Africa. Under the SAICM, 28 African Governments have worked towards developing a draft roadmap which will also help them meet the requirements of the Minamata Convention. Unless the information on understanding of the significant social, environmental health and economic consequences associated with mercury contamination is improved and communicated effectively to decision makers and translated into public policy and management plans, local communities that are facing some of the greatest health risks from the substance, particularly artisanal and small-scale gold miners in the African countries, such as Senegal, Burkina Faso, Tanzania and Ghana will not benefit from the global treaty. There is a need to develop an integrated approach to comprehensively look at all types of chemical pollution both at a country and regional levels, particularly for those chemicals that have strong links with trade of inputs and outputs, such as mercury in Artisanal and Small scale Gold Mining (ASGM); electronic waste and trans boundary pollution of water and air, in order to reduce environmental health risks without impacting the livelihood and huge employment opportunities ASGM creates.

3. **Success of an integrated solution to environmental health concerns relating to chemicals and waste will require a regional collaboration and partnership.** The success of GEF programs in Africa, including experience from Africa Stockpiles Program (ASP), makes a strong case to adopt a consolidated approach to improve individual government capacity at a regional level for sound management of chemicals and hazardous wastes, including POPs and PCBs. The World Bank's engagement in this area, such as ASP has demonstrated that internationally coordinated efforts could lead to significant success in cleaning up and safe disposal of obsolete pesticides and prevent future accumulation. However, lessons from this initiative need to be integrated into national planning process for further identifying other harmful chemicals and waste, and minimizing the resultant environmental health risks from exposure to a wider set of chemicals hazards and risks. Most African countries lack technical, financial and managerial capacity to demonstrate results on the ground, and set up institutional mechanisms to promote innovative techniques, practices and approaches for the elimination and reduction of harmful chemicals and waste. Since 2012, the World Bank is supporting through a Development Grant Facility, creation of a Global Alliance on Health and Pollution (GAHP), for a first three-year commitment period (2012-14). The GAHP interventions in Africa have created significant opportunities to make good use of the technical experiences and capacities from the various member institutions and respond effectively to demand from clients in African countries for cleaning up chemicals and toxic hotspots, preventing recontamination and improving health outcomes.

4. **The issue of electronic waste has created significant environmental health risks in sub Saharan Africa (SSA).** Over the past 10-20 years, the market for Information and Communication Technologies (ICT) has grown exponentially to at least US$2 trillion in 2013. Since e-waste consists of more than 92% recoverable and reusable commodities, it is a source of livelihood for a large informal sector and contributes significantly to the GDP of the national economies as illustrated in Annex H.. However, informal and unregulated e-waste recycling has serious negative consequences for human and environmental health and it is growing rapidly and exponentially in SSA. A recent analysis utilizing UN Comtrade data, for example, shows e-waste in Ghana growing from under 1,000 tons in the late 1990s to close to 14,000 tons of IT-associated waste projected by 2016. Pollution resulting from discarded e-waste and its processing has been shown to have serious adverse impacts on human and environmental health as well as on air, water, biota and land. The Global Alliance on Health and Pollution currently estimates that over 3 million people are at risk of exposure to toxic chemicals through e-waste. Individuals at particular risk are the children and adults involved in the 'recycling' of e-waste where exposure to lead and cadmium from cathode ray tube (CRT) processing or to polycyclic aromatic hydrocarbons (PAHs) and other toxic chemicals from burning plastics and cables is common. . Employing children in the dismantling and processing of e-waste is of particular concern. The Secretariat of the Basel Convention (SBC) recently reported that in some West African countries children as young as five undertake the dismantling of small parts and sorting of materials while older children participate in collecting, dismantling and processing. Due to their small size and stage of development, children are at higher risk from exposure to toxic chemicals than most adults. Globally humans and the environment are also at risk due to the range of toxic substances contained in e-waste that also persist in the environment and bio-accumulate, such as brominated flame retardants, heavy metals (e.g., lead, nickel, chromium, mercury), and persistent organic pollutants (e.g., dioxins, polychlorinated biphenyls --PCBs). While these current trends tell a story of growing environmental and socio-economic risk for African countries, there is an opportunity to change some elements of the equation that would make it possible to create sustainable growth and positive local and global environmental impacts.

5. **Disposal of mixed chemicals and waste containing heavy metal and Persistent Organic Pollutant in urban dump site presents another significant area of health risks.** The widespread and unsound disposal of chemically contaminated waste in urban cities is posing serious challenge in Africa. There is limited information available about inventories and environmental health implications for such hotspots, including pathways of releases and extent of socio-economic impacts, particularly on vulnerable local communities with livelihood dependence and disproportionate exposure. Many cities in Africa are getting rapidly urbanized, resulting in generation of huge quantities of municipal, medical and industrial waste, leading to creation of open waste-dump sites, often in close proximity of poor residents. The disposal of municipal waste, which usually contains a potentially toxic mix of industrial, hospital and hazardous household waste, such as plastic, batteries, mercury containing waste, metals and industrial chemicals present a formidable challenge with respect to control of dioxins and furans. The unregulated open burning of hazardous household waste and hospital waste both at dumping sites and in confined locations pose a severe impact on land and surrounding environment, and health risks to poor communities and workers who are exposed. Lack of knowledge, public pressure and scientifically verifiable evidence about the environment health risks from such hazardous waste and activities often restrains governments from developing appropriate regulatory frameworks and implementation approaches.

6. **The health risks associated with use of mercury is very high in the mining sector, which is amongst the fastest growing sectors in several African nations** (see Annex G). In the last decade, the production of gold, for example, has grown dramatically, in some nations, by over 5,000 to 10,000 %. Mining of gold in Africa is generally characterized by few large scale mechanized operations, hundreds of medium sized operations and tens of thousands of small scale operations carried out by millions of local entrepreneurs, panners or artisans . The Artisanal and Small scale Gold Mining (ASGM) sector contributes significantly to the GDP of those nations and also provides an important employment opportunity for poor and rural communities and migrant labor. However, unregulated and unmanaged, ASGM sector, which uses mercury, has serious environmental health, social and economic consequences

on poor workers and families. Some of the key consequences of mercury contamination are highlighted below.

- Mercury is a dangerous neurotoxic with significant health and economic consequences, which has broader multi-sectoral risks beyond direct health risks to miners and their families. According to the Director General of the Tanzanian National Environmental Management Council, "mercury contamination is a time bomb waiting to explode".
- Mercury contamination poses potentially serious economic consequences to the lucrative local and regional fisheries with potentially grave economic consequences due to its bio-accumulation in organic tissues and along the food chain. Many ASGM activities are carried out near or upstream of streams and rivers that drain into or are in close proximity to major freshwater impoundments such as lakes and manmade reservoirs created by storage dams for water supply, irrigation and hydropower. In Tanzania, for example, ASGM is carried out near major freshwater lakes such as Victoria, Nyasa, Rukwa and Tanganyika which host thriving fisheries for export and local consumption. The harmful effects of ASGM are exacerbating poverty in rural communities. In Tanzania, mercury is estimated to be affecting over 2 million men, women, and children directly or indirectly. There are no known estimates of impacted populations in any of the African countries where this activity is developing fast.
- Mercury used in ASGM in Africa is mostly obtained illegally, posing a serious governance challenge. It is estimated that 90 to 95 percent of mercury used in many African nations is obtained illegally and/or smuggled from neighboring nations, representing a failure of governance. Yet there is no systematic monitoring of mercury in place. Current data and knowledge about the amount of mercury used or the severity and extent of mercury contamination and its health, environmental, and social impacts is limited, patchy or dated. There are no policies in place to regulate or manage the use of mercury. There are no regulations for controlling the importation or use of mercury. There are no government sanctioned guidelines for safe use of mercury in place that are being used.
- Institutional capacity (both technical and administrative) to monitor use of mercury as well as its health and environmental consequences is limited in most African nations. There is therefore, an urgent need to understand the capacity constraints, linked with economic, environment and social implications of widespread use of chemicals, such as mercury. Provided all the pre-requisites above are satisfied there would be technical solutions to promote a decrease in the use of mercury through recycling or even eliminate altogether the need for mercury through the use of alternative non-hazardous chemicals such as borax.

Many of the above mentioned environmental health problems in the Africa region seem to be rooted in the limited institutional capacity at country level to analyze and address such issues; and fragmented approach used in the past focusing on one chemical rather than focusing on environmental health of affected population using an area based approach. There have been many programs which have been implemented in the region by various development agencies, funded under GEF, and by bilateral donors (see Addendum to Annex F). Although the coverage of GEF POPs activities is broad, in fact there are not that many projects that have delivered on the ground yet. Many of the programs have been ad-hoc and uncoordinated, which has prevented a sustained and comprehensive impact on the management of hazardous chemicals, resulting in minimal improvement on environmental health and pollution impacts. The efforts envisaged under this Program are complementary and will build upon these existing activities, while creating the conditions for mainstreaming of the Chemicals agenda within development priorities and scaling up.

7. A properly structured and concerted effort by governments, and other relevant role players, is therefore urgently needed to address this problem. To ensure that limited technical and financial resources at country level are enhanced using a regional approach, both the World Bank and GEF have decided to join forces with existing on-going efforts by national and international actors to

address the Environmental health risks associated with Chemicals and waste management in Africa using an integrated approach. The World Bank has the necessary convening power and authority to undertake the policy dialogue necessary to engage key governments and local and international civil society groups to address the problem in a more strategic and integrated manner as well as leverage funding. This proposal, to be implemented by the World Bank, in coordination with regional government and partners, aims at a regionally coordinated approach by strengthening the analytical work and capacity eventually resulting in a larger program using IDA resources. The proposal will focus on Environmental health impacts from the key sectors - Artisanal and Small scale Gold mining and unregulated waste dump sites, including electronic waste, where Bank has comparative advantage through its ongoing lending programs in Urban development, ICT, mining sectors. With so many interested and active stakeholders (governments, NGOs, multi-lateral banks, bilateral financial agencies, etc.,), the proposed project will have a significant challenge but at the same time an incredible opportunity to finding an effective way to harness and optimize the delivery of diverse energies and investments. More than ever, coordinated and efficient actions underpinned by targeted interventions around hot spots will help address this critical environmental health issues at regional level in Africa.

The baseline scenario or any associated baseline projects

8. The proposed project will be complemented by the ongoing World Bank supported Development Grant Facility (DGF) in the amount of US$2.0 million.

9. The World Bank provided a $700,000 grant, under its Development Grant Facility, to the Blacksmith Institute (BI), for a global partnership that will bring together local communities affected by "legacy pollution" with development partners, local governments, other NGOs, and the private sector. The BI designed this partnership, The Global Alliance on Health and Pollution (GAHP) in 2012 which aims to assist low- and middle- income countries in addressing the problem of chemicals, industrial waste, and toxic pollution, with specific regard to improving public health. GAHP builds capacity, country by country, by identifying, analyzing, and prioritizing the cleanup of toxic hotspots.

GAHP has 24 members:

- Three multilateral development banks: Asian Development Bank, Inter-American Development Bank and the World Bank);
- Two bilateral agencies: the European Commission and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ);
- Nine Ministries of Environment: Cameroon, Indonesia, Ghana, Madagascar, Mexico, Peru, the Philippines, Senegal and Uruguay;
- Ministry of Health of Tajikistan;
- Two city governments: Buenos Aires and Montevideo;
- Four NGOs: Blacksmith Institute, Indonesia advocacy group KPBB, the Cyrus R. Vance Center for International Justice and Fundación Chile;
- Three United Nations agencies: the UN Development Program, the UN Industrial Development Organization and the UN Environment Program

The proposed alternative scenario, with a brief description of expected outcomes and components of the project

The Project Development Objective (PDO) is to improve a shared understanding of current trends in environmental health associated with chemical waste management in Artisanal and Small scale Gold mining and unregulated waste dump sites in sub-Saharan Africa, and develop a regional collaborative platform to address it.

Key Results

Outcomes

- Improved understanding of environmental health implications of harmful chemicals and waste in Africa and of options for risk management.
- Increased alliances with African countries to address the risks associated with chemicals and waste management.
- A regional collaborative program to address environmental health risks developed.

Outputs

- Stock-taking exercise about the regulatory frameworks and institutional mechanisms in selected pilot countries.
- Analyses of environmental health and socio-economic consequences of land degradation from toxic chemicals, and opportunity costs associated with management of chemical and hazardous wastes.
- Awareness raising program on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste.
- Partnership with selected countries in Africa to identify risks and develop approaches for reduction of harmful chemicals through dialogues, workshops and collaborative planning.
- Consultations with additional counterpart countries, stakeholders and donors to design a large global program.

Components

10. The proposed project has three components (see Annex D):

Component 1: Support Analytical Studies and Regional Strategies to address the risks associated with chemicals and waste management ($1,300,000): This component will support analytical studies, country level assessment and regional strategies to design a long-term program. The following studies and strategies are suggested but will be subject to consultation with key stakeholders:

1.1 Mapping key areas of exposure across the region. This exercise will evaluate and map across the Africa region (approximate 12-13 representative countries in the region, where there are known environmental health risks associated with extractive industry and urban sector) key health and environmental data, knowledge, risks and impacts, including identification and delineation of key hotspots based on environment and health risks. In addition, stock-taking exercise will be undertaken covering the regulatory framework and institutional mechanisms that are currently used to identify, regulate and monitor environmental health risks associated with harmful chemicals and substances, such as mercury and PCBs; including analyses of effectiveness of current system and identify entry points for immediate and long term interventions to address these risks in a couple of pilot countries. This will include review of current environmental policies and regulations and institutional capacity to monitor; screen and evaluate health and environmental risks associated with ASGM sector and urban sector. A review will be undertaken of current financial incentives; regulations regarding hot spots near sensitive habitat; safety and contamination of public resources; institutional capacity for pollution control; health and environmental assessments, monitoring and reporting.

1.2 Analysing the environmental health and socio-economic consequences of land degradation from toxic chemicals, and opportunity costs associated with management of chemicals and hazardous wastes. Building upon the previous tasks, this will involve assessing for few selected countries (anticipated to be 2-3) economics of available and innovative options for minimizing and controlling the

use of hazardous chemicals, including impact on land degradation, for example in case of mercury (use of retorts, for example) to reduce its impacts or to discourage the use of mercury and promote acceptable alternatives (such as Borax) without impacting the livelihood and employment opportunities of ASGM. This component will also look into the ways to decrease in economic and socially acceptable manner the impact of chemical pollution emanating from unregulated landfills. While recognizing that the risks of exposure, scope of regulations and capacity of enforcement and environmental health consequences of poor management of chemicals may vary among countries and regions, it is important to develop shared regional economic approaches and solutions for eliminating hazardous chemicals and waste, including contaminated sites.

1.3 Develop and support awareness raising program on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste. Awareness building workshops and other communications tools will be developed to increase awareness about health risks and impacts on communities and surrounding environment. An effective awareness program could be based on the innovative use of ICT and disclosure. The goal is to complement efficiently any on-going awareness raising programs. Based on research, discussions and external input from many partners, a road map for an awareness raising program under the GEF 6 program within Africa and outside Africa will be proposed.

Key Output of Component 1

- **Country Reports** Mapping key areas of exposure to contamination across key countries in the Africa region (8 countries Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria)
- **Report with detailed site investigation of environmental health and socio-economic** consequences of hotspots of land degradation from toxic chemicals, and opportunity costs associated with management of chemical and hazardous wastes (2-3 Countries out of 8 countries above)
- **Awareness raising program** on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste.

Component 2: Building Partnership within the Africa region for elimination and reduction of harmful chemicals and waste in Africa ($250,000): Building on the mapping and exercise involving detailed analyses, this component will support the building of partnerships with selected countries in Africa (Senegal, Mali, Burkina Faso, Ghana, Tanzania initially identified) to identify risks and develop approaches for reduction of harmful chemicals, including national governments and ministries such as environment, health, mining, urban, energy; international and national NGOs, Civil Societies Organizations (CSOs) other development agencies (African and International), financial institutions. This component will support dialogues, workshops and softer interventions to build constituencies for the anticipated larger program, which will require additional financing and will focus on investments in technology and remediation. Additional partnerships and pilot interventions to be identified during preparation would also be supported as the needs emerge.

The following activities will be conducted:

2.1 **Regional Alliance with Environment Regulators and Mining Institution0)**: Building a platform for discussion among policy makers and enforcement agencies to address issues of illegal and unregulated

mercury movement and use, unregulated artisanal and small-scale mining and associated environmental degradation and pollution and environmental health aspects related to unsafe mercury usage.

2.2 **Regional Alliance with Scientific and Sector Institutions**: Building capacity and utilizing national and internal expertise to understand the environmental health impacts of mercury use through analysis of existing epidemiological studies and understanding transmission pathways and receptors of mercury pollution

2.3 **Alliances with other development partners, such as UNIDO, UNEP, WHO etc**: Building on the existing work been doing or under implementation by other donor partners and gleaning good practices and lessons learnt from demonstration and pilot projects and enhancing the training and capacity building activities and studies already undertaken

Key Output of Component 2

- **Dialogue with government institutions** to discuss key policy requirements, regulations and plans to address gaps in 8 countries Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria.
- **Alliances established with Scientific and Sector Institutions** to analyse environmental health risks and socio-economic impacts associated with land degradation from toxic chemicals, and identifying approaches to address these concerns in a medium term basis
- **Alliances established with other development partners** for assisting African countries to prepare inventory of contaminated sites; existing knowledge base to address key concerns related to minimizing impacts on people and surrounding environment; and develop institutional capacity to address environmental health and socio-economic consequence of unregulated hazardous chemicals and waste site.

Component 3: Regional Program Development ($450,000). This component will integrate the results of component 1 and component 2, carry out consultations with additional counterpart countries, stakeholders and donors to design a large global program for the Africa region to address risks associated with management of harmful chemicals and hazardous waste. Countries that face serious environmental health and socio-economic risks associated with management of harmful chemicals and hazardous waste will be invited to form part of the program using various sources of funding such as IDA funding, GEF, other donors funding and commitments.

Incremental cost reasoning and expected contributions from the baseline, the GEFTF, LDCF/SCCF and co-financing;

11. Incremental financing from the GEF MSP and support from the WB Development Grant Facility (DGF) provides an opportunity to address some of the constraints faced by the national and international community to tackle the environmental health issue related to these contaminants. With so many interested and active stakeholders (governments, NGOs, multi-lateral banks, bilateral financial agencies, etc.), the proposed project will have a significant challenge but at the same time an incredible opportunity to finding an effective way to harness and optimize the delivery of diverse energies and investments. The proposal is informed by various multilateral environmental agreements and global processes including the Minamata Convention on Mercury. Please see Annex E for detailed incremental cost analysis

Global environmental benefits:

12. The project is primarily one of the first integrated attempt to assist African countries develop strategies and plans to reduce the risks of exposure to harmful and toxic chemicals, such as mercury, lead,

e-waste and POPs. Such intervention will also assist African countries in their commitment to global environmental conventions, such as Minamata. The proposed project as designed is the preparatory work that is expected to lead to coordinated and efficient actions underpinned by targeted interventions around contaminated hot spots. The intervention will help address at regional level in Africa, the critical environmental health issue related to harmful chemicals in urban cities and ASGM. Additionally the project is designed to also assess and lay the groundwork for ensuring that technical assistance and investments are supporting truly green growth through enhancing the region's ability to deal with the issues related to the handling, recycling and management of e-waste. The GEF MSP will support studies to analyze the growth in ICT and in e-waste following a 'life cycle' approach and recommend solutions in moving from a post-problem 'clean up' approach to a value-added approach that supports building a healthy, sustainable industry which can create an impressive range of positive impacts on the national, regional and global levels.

Innovativeness, sustainability and potential for scaling up

13. Environmental sound management of harmful chemicals and waste in urban cities and in ASGM is one of the major issues in most African countries due to the lack of technical, financial and managerial capacity to demonstrate results on the ground, and set up institutional mechanisms to promote innovative techniques, practices and approaches for the elimination and reduction of harmful chemicals and waste. Poverty and lack of alternative livelihood opportunities also attracts a large percentage of rural poor to ASGM. This project approach aims to reducing environmental health issues through an innovative regional collaboration and aims to build awareness and understanding of the public health risks and environmental pollution to participating African countries. The regional partnership is aimed at recognition of the need for a common platform to assess the legal and regulatory frameworks to address common issues such as cross-border and illegal movement of mercury and novel approaches. The objective is to formalize the informal ASGM sector, empowering the rural poor and provide them with cleaner and simple technologies so as to address the drivers of mega-trends of global environmental degradation in an integrated and sustainable manner. It is expected that pilot projects in some countries can then be replicated in other countries.

A.2. *Stakeholders: Will project design include the participation of relevant stakeholders from civil society and indigenous people? (yes ☒ /no☐) If yes, identify key stakeholders and briefly describe how they will be engaged in project design/preparation*:

14. The Bank will lead Project Execution and, as an integral part of its due diligence, it will coordinate and maintain extensive and continued stakeholder consultations at national and international level to support all components of the project. This will be done in the framework of the regular consultative mechanisms established as part of the Minamata Convention, Basel Convention, Stockholm Convention, SAICM Framework agreed by 27 African countries, and as well as part of other GEF consultations in the Africa region. Some of the ideas proposed in this project and the need for a larger program to tackle the environmental health issues have been discussed in a significant high level round table with various interested countries, namely, the Governments of Ghana, Tanzania, Mali, Senegal, Burkina Faso, Kenya, Ethiopia and with the USEPA, NRDC, UNIDO, industry associations, Non-Governmental Organizations such as Artisanal Gold Council and others. Additional consultations are planned throughout the implementation of the project. A list of all the stakeholders interested in environment health issues are listed in Annex I.

A.3. Gender Consideration. Are gender considerations taken into account? (yes ☒ /no☐). If yes, briefly describe how gender considerations will be mainstreamed into project preparation, taken into account the differences, needs, roles and priorities of men and women.

15. An estimated 30% of world's artisanal miners are women who occupy a number of roles ranging from labour-intensive mining methods to the processing aspect of artisanal mining, and thus this project presents an opportunity to provides a rationale and strategy for women to maximize potential benefits from participation in the sector.

16. It has been well documented that inequities in political power, distribution of income, capital assets, and access to education and information have resulted in the increased susceptibility of women to chronic poverty. Despite the diverse and important roles undertaken by women in artisanal mining, limited reliable information is available on this topic.

17. Women and children are often involved in mineral processing activities range from crushing, grinding, sieving, washing and panning, to amalgamation and amalgam decomposition. It is estimated that about 3 million women and children work in ASGM of the 15 million miners worldwide[6]. Women typically play a much larger role in artisanal mining than in the large scale mining sector and the percentage of female artisanal miners is the highest in Africa (see table below), ranging between 40 and 50%. As processing activities are often conducted in the home, women and their families can be at great risk from mercury poisoning and silicosis.

Table: Women in Artisanal Mining in Selected Countries ***Africa***[7]

Country	Number of Women	Proportion of Women
Burkina Faso	45,000-85,000	45
Ghana	89,500	45
Malawi	4000	10
Mali	100,000	50
Mozambique	18,000	30
South Africa	500	5
Tanzania	137,500	25
Zambia	9,000	30
Zimbabwe	153,000	50

A.4. *Benefits. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF).*

18. WB and GEF through various partner organizations have been involved in several projects in the Africa region to enhance the socio-economic benefits for mining communities as well as reduce the associated environmental health implications due to use of mercury of artisanal and small scale gold mining. Nevertheless these and other donors and NGO-funded efforts at site level protection need to be supplemented with site specific intervention as well as through a larger regional program. Artisanal and small scale gold mining is a significant contributor to employment and poverty alleviation in many African countries, such as Tanzania, Ghana, Mali, Senegal, Burkina Faso, Ethiopia etc. For example

[6] **Mercury Exposure and Health Impacts among Individuals in the Artisanal and Small-Scale Gold Mining Community: A Comprehensive Review: Herman Gibb and Keri Grace O'Leary**

[7] Women and Artisanal Mining: Gender Roles and the Road Ahead: Jennifer J. Hinton, Marcello M. Veiga Christian Beinhoff 2003

estimates of the number of artisanal and small-scale miners in Tanzania range from 500,000 to 1.5 million. The government has estimated that small-scale mining generates at least three jobs for each individual directly involved . National gold exports reached US $1.076 billion in 2009, up from US $932.4 million the previous year – including all large, medium, and small-scale mining operations. Artisanal and small scale gold mining may account for approximately 10% of Tanzanian gold production, though most of the small-scale mining activities are currently informal (i.e., not licensed officially). ASGM is a traditional livelihood activity, a full-time source of employment, as well as a season specific part-time job, where the ASGM populations include migrant peoples, local communities with a longstanding history of mining, and people from all walks of life. There are rich diversities of labor practices and population demographics in African countries' ASGM sector.

19. While recycling of e-waste has driven employment and stimulated economic growth in the recycling sector, its informal and unregulated processes in most African countries are a source of groundwater contamination, atmospheric and water pollution as well as health problems including occupational safety impacts among those directly and indirectly involved. This is due to the poor and unsophisticated methods of processing the waste, including uncontrolled burning, and disassembly resulting in release of toxic emissions containing bromine, arsenic, mercury, copper, zinc, lead etc. Benin, Côte d'Ivoire, Kenya, Ghana, Liberia and Nigeria together generate nearly a million tons of domestic e-waste every year, according to UNEP, in addition to which they are also dumping grounds for e-waste exports.

20. The project will carry out a socio-economic survey and assessment of communities living near the mercury hotspots and those working in e-waste recycling and open-waste dumpsites in countries, to analyze the impact at local and national levels. This assessment will inform the regional program, particularly about the additional resources to help the local poor and women and children.

A.5 *Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks:*

Stakeholder risk: There are several partners, including NGOs, bilateral and UN agencies, working towards minimizing the environmental health implications of chemicals in Africa, with uneven understanding of risks, impacts, linkages and approaches to address the problems mentioned in this proposal. The project recognizes that there is a risk that consensus might not be reached and that due to limited resources all the stakeholders might not be able to be consulted at this stage in time. To mitigate this risk, the final program that will be designed will built in additional consultation processes within national projects.

Design risk: The problem of mitigating environmental health risks due to use and disposal of chemicals is very complex. The risks of impacting livelihood of people involved in illegal disposal of chemicals and upsetting entrenched business interest will be considered in project design. The project will be designed using the best intelligence and experience to date to address this risk and will be very explicit about all the risk in the final design. While many groups such as the UNIDO, WHO, USEPA, HRW, NRDC etc. will be involved in project execution, coming up with a design that can tackle such a large program will be challenging. By taking an analytical approach to diagnosing specific problems, and, by building constituencies and co-designing custom solutions, this risk is minimized.

The overall rating is Substantial. The complexity of the problem and the fact that an ambitious program will be required in the long run makes the risk substantial. Lowering this risk will require that this project and the program that will ensue are well consulted and designed. The project's success will depend on the level of leadership that the Bank can show and the incorporation of the opinion of experts as well as the political commitment by national governments. There is really no large funding available for a large scale reduction of environmental health implications of chemicals in Africa currently. Government resources are scarce, but political will (including the will to prosecute, and a newfound coordination and cooperation among the various national agencies in-country and across borders) will be the linchpin of success in designing this program. The GEF resources would hopefully catalyze the efforts of the key public and private players in a strategic and concerted program. The design of this MSP can be the test for the larger program. One of the highest risks is that consensus and important agreements are not reached under the MSP which would result in the larger program not taking off. The risk will be minimized by improved communication among key stakeholders and collaboration among all. The MSP will provide a clear communication strategy back to the GEF and any other donor interested in participating. Should all institutional, legal and regulatory issues be satisfactorily addressed during project preparation, it is likely that the project risk will decrease to moderate.

A.6. Cost effectiveness: Explain how cost-effectiveness is reflected in the project design:

21. The cost-effectiveness of the project will be assured under the leadership of the Bank through an integrated approach to comprehensively look at all types of chemical pollution in urban and mining sectors at country and regional levels, particularly for those chemicals that have strong links with trade of inputs and outputs and geographical proximity, such as mercury in Artisanal and Small scale Gold Mining (ASGM); electronic waste or trans boundary pollution caused due to water and air pollution, in order to reduce environmental health risks without impacting the livelihood and huge employment opportunities ASGM creates.

22. The project will involve national and international experts, as well as international institutions and the political commitment by national governments to facilitate the collection of accurate information and to establish a high-responsiveness of the project to keep a steady momentum in project implementation.

A.7. *Coordination. Outline the coordination with other relevant GEF-financed projects and other initiatives [not mentioned in A.1]:*

23. The World Bank has focused increased attention in recent years on the complex problems of reduction of environmental health risks. The Bank assists member governments and international initiatives that seek to support more effective assessment of risks and innovative solutions through partnerships in order to address the issue of use and dumping of harmful chemicals including heavy metals. The Bank continues to partner with the multiple agencies through a Global Alliance for Health and Pollution (GAHP), which is supporting activities under the umbrella of Pollution Management and Environmental Health (PMEH). This alliance is collectively positioned to support national agencies of developing countries in their execution of multiple environmental health issues, including their commitment under the Minamata Convention.

24. This MSP is complementary to the PMEH program, which is co-financed by a DGF grant for this partnership of $ 2.0 m over three years. The funds from this initiative will be used to catalyze awareness building around the issue of contamination due to use and disposal of harmful chemicals such as lead,

mercury, chemicals etc., and build the capacity of local and national government authorities to prevent, assess and address environmental health issues. The project will build on, and complement, other national initiatives in Urban and mining sector, including projects funded through the World Bank, USEPA and other implementing agencies, thereby expanding opportunities for exchange of lessons learned and good practice across the region. Please refer to Annex F on other GEF financed activities in Africa.

A.8 *Institutional Arrangement.* Describe the institutional arrangement for project implementation:

25. The GEF MSP will be executed by the Bank, which will issue several contracts to consultants and national and international institutions that will carry out the different components. A core Bank team with staff from the Global Practice on Environment and Natural Resource Management, in close consultation with the GEF secretariat and other UN agencies, will coordinate these scoping, training and consultation activities.

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 *Is the project consistent with the National strategies and plans or reports and assessements under relevant conventions? (yes ☐ /no☐). If yes, which ones and how: NAPAs, NAPs, NBSAPs, ASGM NAPs, MIAs, NCs, TNAs, NCSA, NIPs, PRSPs, NPFE, BURs, etc.*

26. The Minamata Convention of 2013 was aimed "…to protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds." The Article 2 defines the Artisanal and small-scale gold mining as gold mining conducted by individual miners or small enterprises with limited capital investment and production. There are several relevant article in the convention, particularly Articles 3,4,5,6 and 7. Article 7 applies essentially to artisanal and small-scale gold mining and processing in which mercury amalgamation is used to extract gold from ore. Annex C provides for countries to develop National action plans, including mercury supply sources and trade, environmentally sound interim storage, other than waste mercury, mercury wastes, contaminated sites, health aspects, information exchange, public information, awareness and education, research, development and monitoring, implementation plans, reporting, financial resources and mechanism and capacity-building, technical assistance and technology transfer. The Article 7 of the convention requires each country to take steps to reduce, and where feasible eliminate, the use of mercury and mercury compounds in mining and processing. The convention also requires within 3 years of notification to communicate with the Secretariat if at any time the countries think that artisanal and small-scale gold mining and processing in its territory is more than insignificant. It encourages countries to use of existing information exchange mechanisms to promote knowledge, best environmental practices and alternative technologies that are environmentally, technically, socially and economically viable. The convention requires that National Action Plan to include - National objectives and reduction targets; Actions to eliminate (such as whole ore amalgamation; open burning of amalgam or processed amalgam; burning of amalgam in residential areas; and cyanide leaching in sediment, ore or tailings to which mercury has been added without first removing the mercury); steps to facilitate the formalization or regulation of the artisanal and small-scale gold mining sector; baseline estimates of the quantities of mercury used and the practices employed in artisanal and small scale gold mining and processing within its territory; and strategies for promoting the reduction of emissions and releases of, and exposure; managing trade and preventing the diversion of mercury and mercury compounds from both foreign and domestic sources to use in artisanal and small scale gold mining and processing; involving stakeholders in the

implementation and continuing development of the national action plan; and a public health strategy on the exposure of artisanal and small-scale gold miners and their communities to mercury.

B.2. *GEF focal area[8] and/or fund(s) strategies, eligibility criteria and priorities*

27. The project responds to the GEF 5 Chemicals Strategy and, links to the GEF 6 Chemical and Waste Strategy that aim to achieve the long-term goal through "a reduction in the exposure to harmful chemicals and waste of humans and the environment." As designed, the project is consistent with the GEF 5 objectives # CHEM-1: Phase out POPS and reduce POPs releases; and # CHEM-3: Pilot Sound Chemical management and mercury reduction. In addition, it also aligns with GEF-6 objective CW#2: Reduce the prevalence of harmful chemicals and waste and support the implementation of clean alternative technologies/substances and, Program 3: Reduction and Elimination of Persistent Organic Pollutants.

28. This Medium Size GEF project would support preparatory work to respond to the GEF-5 and 6 priorities that have identified the issue of mercury in Artisanal and Small scale Gold Mining. The proposal is also informed by various multilateral environmental agreements and global processes including the Minamata Convention on Mercury.

B.3 *The GEF Agency's program (reflected in documents such as UNDAF, CAS, etc.) and Agencies comparative advantage for implementing this project:*

29. The proposal is aligned with the World Bank's goal of ending poverty and promoting shared prosperity by reducing environmental health risks and building resilience of the poor and vulnerable population. The proposed activity is also in line with the Africa regional strategy, which identifies reducing vulnerability and improving resilience as an important pillar to sustain the goals of ending poverty and promoting shared prosperity. In addition, recent feedback received from World Bank (WB) clients and stakeholders during the preparation of, the World Bank Group's new Environment Strategy, Toward a Green, Clean, and Resilient World for All: A World Bank Group Environment Strategy 2012–2022, explicitly indicate strong demand from many countries for increased support on pollution management and environmental health (PMEH) topics. The strategy considers both how growth can become more sustainable and how investing in the environment can stimulate growth. Addressing environmental challenges through improved pollution management and environment-related health outcomes would contribute an important element to an approach that seeks to help client countries to establish more prosperous, inclusive and resilient cities. The proposal will help strengthen aspects of environmental governance. Extractive resources play important role in Africa's development. Experiences with many African countries indicate that public ownership and investment in minerals brings many actors together in order to protect their interest, which may often stand in opposition. For example companies try to maximize their profit, governments aim to achieve national economic growth and protection of public interest, while communities continue to struggle to retain their livelihoods, surrounding environment and livelihood opportunities. The proposal to engage various players on addressing the environmental health implications of mercury in ASGM will demonstrate a need for

[8] For biodiversity projects, please describe which Aichi Target(s) the project will directly contribute to and what indicators will be used to track progress towards achieving these specific Aichi target(s).

collaborative governance that will center on their sustainable extraction, equitable distribution and utilization. The engagement will aim to bring state and non-state actors, who are benefitting from ASGM to work collectively to set out rules and processes to protect their individual and collective interest as well as manage and distribute the risks and benefits of economic activity.

30. The World Bank has the necessary convening power and authority to undertake the policy dialogue necessary to engage key governments and local and international civil society groups to address the problem in a more strategic and integrated manner as well as leverage funding. This Medium Size GEF project is requested from the GEF to support selected activities and consultations with the aim of designing a larger program to address environment and health risks of use of mercury and disposal of other harmful chemicals in Africa. A programmatic and regional approach to chemicals management in Africa, based on building political commitment to strengthen capacity to analyze and plan, to reduce the risk of environmental health risks resulting from management of chemicals and building capacity will provide the platform for subsequent national efforts to strengthen management of environmental health, economic and social risks from chemicals.

C. DESCRIBE THE BUDGETED M &E PLAN:

31. The World Bank will have overall responsibility for executing the project and for monitoring and evaluation of activities funded under the GEF grant. The Result's Framework in Annex A provides performance and impact indicators for project implementation along with their corresponding means of verification and this will form the basis on which the project's Monitoring and Evaluation system will be built.

LIST OF ANNEXES

ANNEX A: Project results framework

ANNEX B: Calendar of expedited reflows

ANNEX C: Consultant to be hired for the project

ANNEX D: Project description

ANNEX E: Incremental cost analysis

ANNEX F: Overview of GEF-supported POPs and chemicals activities in Africa

ANNEX G: Top ASGM Mercury Emitting African Countries

ANNEX H: Overview of the use of electrical and electronic equipment and e-wastes in SSA countries

ANNEX I: International and national non-governmental stakeholder and country partners

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. Record of Endorsement[9] of GEF Operational Focal Point (S) on Behalf of the Government(S): (Please attach the *Operational Focal Point endorsement letter(s)* with this template. For SGP, use this SGP OFP endorsement letter). Non applicable

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*

B. GEF Agency(ies) Certification

This request has been prepared in accordance with GEF policies[10] and procedures and meets the GEF criteria for MSP approval under GEF-6.

Agency Coordinator, Agency name	Signature	DATE *(MM/dd/yyyy)*	Project Contact Person	Telephone	Email Address
Karin Shepardson, GEF Agency Executive Coordinator		October, 20, 2014	Paola Agostini, Regional Coordinator, Africa Region	202 473 7620	pagostini@worldbank.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION *(Applicable Only to newly accredited GEF Project Agencies)*

For newly accredited GEF Project Agencies, please download and fill up the required **GEF Project Agency Certification of Ceiling Information Template** to be attached as an annex to the PIF.

[9] For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.
[10] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

REDUCING ENVIRONMENTAL HEALTH IMPACTS OF HARMFUL POLLUTANTS IN AFRICA REGION PROJECT RESULTS FRAMEWORK

Project Development Objective (PDO): To improve a shared understanding of current trends in environmental health associated with chemical waste management in Artisanal and Small scale Gold mining and unregulated waste dump sites, and develop a regional collaborative platform to address it".									
PDO Level Results Indicators[11]	**Core**	**UOM**[12]	**Baseline Original Project Start 2013**	**Cumulative Target Values**[13]		**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Comments**
				2015	**2016**				
1. Improved understanding of environmental health implications of harmful chemicals and waste in Africa and of options for risk management.	☐	Number	0	1	1	At end of project	Study delivered	WB	
2. Increased alliances with African countries to address the risks associated with chemical waste management.	☐	Number	0	2	4	Annually	MOU signed	WB	

[11] **Please indicate whether the indicator is a Core Sector Indicator (for additional guidance – please see http://coreindicators).**
[12] **UOM = Unit of Measurement.**
[13] **Target values should be entered for the years data will be available, not necessarily annually. Target values should normally be cumulative. If targets refer to annual values, please indicate this in the indicator name and in the "Comments" column.**

3. A regional collaborative program to address environmental health risks developed		Number	0		1	At end of project	Funding proposal delivered	WB	
Beneficiaries[14]									
4. Project beneficiaries,	☒	Number	0	100	300	Annually	Reports	WB	
Of which female (beneficiaries)	☒	Number	0	50	150	Annually	Reports	WB	

Intermediate Results and Indicators									
Intermediate Results Indicators	**Core**	**Unit of Measurement**	**Baseline Original Project Start (200x) Progress To Date (2013)**	**Target Values**		**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Comments**
				2015	**2016**				
Intermediate Result 1:Support Analytical Studies and Regional Strategies to Reduce Environmental health Risks of Chemical Pollutants									

[14] **All projects are encouraged to identify and measure the number of project beneficiaries. The adoption and reporting on this indicator is required for investment projects which have an approval date of July 1, 2009 or later (for additional guidance – please see http://coreindicators).**

Intermediate Results and Indicators									
Intermediate Results Indicators	**Core**	**Unit of Measurement**	**Baseline Original Project Start (200x) Progress To Date (2013)**	**Target Values**		**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Comments**
				2015	**2016**				
1. Baseline Assessment of Environmental Health Implications of Mercury in Artisanal and Small scale Gold mining in 3 priority Countries	☐	Yes/ No	No		Yes	Annually	Activity report	WB	
2. Baseline Assessment of Environmental Health Implications of Urban Waste Dumps in 3 priority Countries.	☐	Yes/ No	No		Yes	Annually	Activity report	WB	
3. Baseline Assessment of Environmental Health Implications of e-waste sites in 3 priority Countries	☐	Number	0		2	Annually	Activity report	WB	
4. Awareness plan designed	☐	Number	0		1	Annually	Activity report	WB	
Intermediate Result 2: Building Alliances and Political Will to Address Environmental Health issue in Africa region									
5. Action plan and training to improve legislation around	☐	Number	0	2	5	Annually	Training reports	WB	

Intermediate Results and Indicators									
Intermediate Results Indicators	**Core**	**Unit of Measurement**	**Baseline Original Project Start (200x) Progress To Date (2013)**	**Target Values**		**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Comments**
				2015	**2016**				
environmental health implications of mercury in ASGM delivered in at least five countries.									
6. At least one community of practice established and trained in identifying environmental health risks in ASGM sector	☐	Number	0		50	Annually	Training reports	WB	
7. Number of local staff trained	☐	Number	0	50	150	Annually	Training report	WB	
8. At least one regional strategy/meeting supported	☐	Number	0		1	Annually	Meeting report	WB	
Intermediate Result 3: Program Development									
9. Reports completed and submitted on time	☐	Number	0 0	2	8	Annually	Assessment of report quality	WB	
10. Final proposal	☐	Number	0 0		1	Annually	Final funding proposal	WB	

ANNEX B: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up)

Non-applicable

ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF RESOURCES

Position Titles	Person Week $/week	Estimated Person Weeks	Tasks to be Performed
For Project Management			
Coordination undertaken by World Bank	0	NA	The standard WB funds management fees of 9.5% applies
For Technical Assistance			
Local			
Contract with Specialized regional agencies or NGOs, such as Artisanal Miners Association Local Consulting Companies, as institutions.	3000	40	Assessment of Environmental health Risks Due To Mercury use; Electronic Waste; and other contamination such as from lead and chemicals
Training specialist on Minamata Convention; Lead and Chemical Contamination	2500	40	Carry out training on specific requirements in selected countries
Environmental Health Specialist	2500	40	Support pilot interventions and development
Project design and development	2500	35	Carry out the consultations and design of the program
International			
Environmental Health Specialist	2500	40	Assessment of epidemiological and environmental health implications of contamination around identified sites to delineate hotspots
Environmental Economist	3500	35	Supply chain analyses of Mercury in Artisanal and Small scale Gold Mining Sector in selected countries
Environmental Regulation and Trade specialist	3000	35	Supply and value chain analyses of e-Waste trade in selected African countries
Contract with Specialized agencies or NGOs, such as NRDC, WWF, ASG Council etc. as institutions.	4000	50	Assist in developing National Action Plan and strengthen awareness among African countries regulators, miners and civil society

ANNEX D: PROJECT DESCRIPTION

Context

There are many global and regional initiative and conventions, including those by the UN that indicate that the economic costs of environmental effects due to chemicals, VOCs (Volatile Organic Compound) and mercury emissions alone account for 5.7 to 13 percent of the total annual costs in ecosystems and biodiversity losses. Apart from significant environmental costs , as per a recent 'Cost of Inaction' report by UNEP (2013), Chemicals led to 2.27 million deaths, which is higher compared to diarrheal diseases (2.16 million deaths), HIV/AIDS (2.04 million deaths), and Road traffic accidents (1.27 million deaths). The figure 1 shows the major chemical contamination around the world and mercury is among the top six toxic threats.

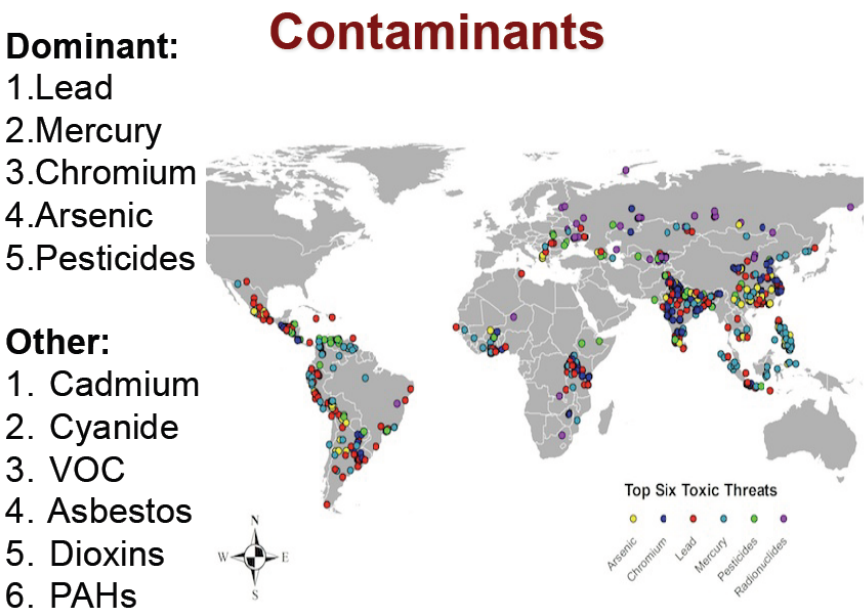
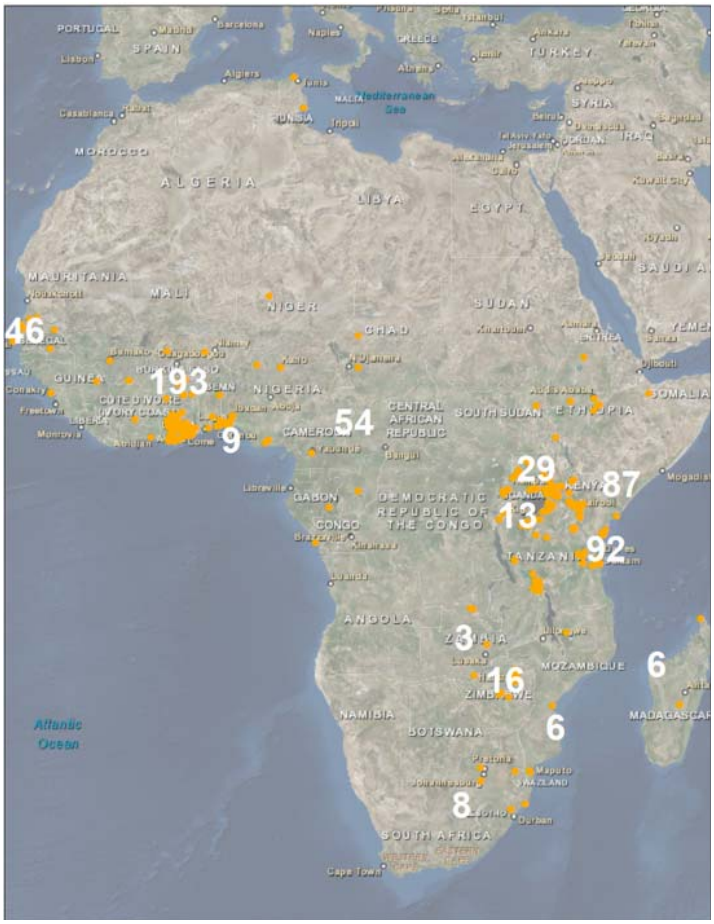


Figure 1: Major Chemical Contamination around the World

The recent global treaty on controlling the use of mercury (i.e. UN's Minamata Convention on Mercury) provides an opportunity to catalyze policy reforms on how a toxic compound can be used and managed in Africa. Under the SAICM, 28 African Governments have worked towards developing a draft roadmap which will also help them meet the requirements of the Minamata Convention. Figure 2 identifies the number of toxic site in Africa region therefore there is an urgent need to develop policy guidance for properly understanding the grave consequences of mercury use in ASGM, and minimizing and controlling the use of mercury (through the use of retorts, for example) so as to reduce its impact or to find acceptable alternatives to the use of mercury (such as Borax) without impacting the livelihood and huge employment opportunities ASGM creates. Environmental protection agencies and health authorities are struggling with the governance and management of mercury and will greatly benefit from support to develop policy guidance.

Figure 2: Number of Toxic Site in Africa Region



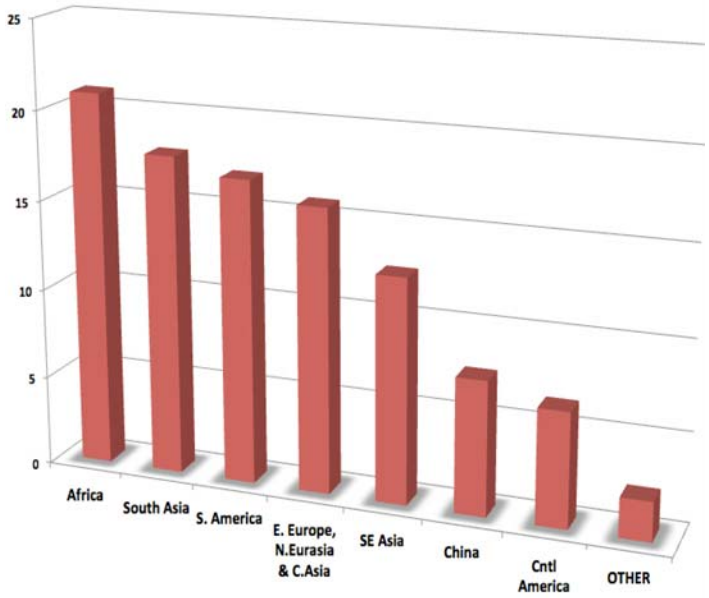
Source: Toxic Site Investigation Program of Blacksmith Institute, 2013

Another area that often gets less attention is the environmental health risks associated with a rapidly expanding energy and urban sector, particularly in transmission and distribution as well as in urban waste dumps. The widespread use of PCBs (Polychlorinated Biphenyls) in electrical equipment (for insulation and in transformer oil) is posing serious challenge in Africa. Also, many cities in Africa are getting rapidly urbanized which is also resulting in generation of huge quantities of municipal, commercial and industrial waste, leading to creation of open waste-dump sites, often in close proximity of poor residents.

Primitive recycling techniques such as burning cables for retaining the inherent copper expose workers (both adult and children) as well as their families to a range of hazardous substances. E-waste-connected health risks may result from direct contact with harmful materials such as lead, cadmium, chromium, brominated flame retardants or polychlorinated biphenyls (PCBs), from inhalation of toxic fumes, as well as from accumulation of chemicals in soil, water and food. In addition to its hazardous components, being processed, e-waste can give rise to a number of toxic by-products likely to affect human health. Recycling activities such as dismantling of electrical equipment may potentially bear an increased risk of injury. Children are especially vulnerable to the health risks that may result from e-waste exposure as their intake of air, water and food in proportion to their weight is significantly increased compared to adults, - and with that, the risk of hazardous chemical absorption. Furthermore, their bodies' functional systems such

as the central nervous, immune, reproductive and digestive system are still developing and exposure to toxic substances, by hampering further development, may cause irreversible damage[15].

Figure 3 : Percentage of Toxic Sites in Each Region



Source: Toxic Site Investigation Program of Blacksmith Institute, 2013

Project components

Component 1: Support Analytical Studies and Regional Strategies to address the risks associated with chemical waste management ($1,300,000): This component will support analytical studies, country level assessment and regional strategies to design a long-term program. The following studies and strategies are suggested but will be subject to consultation with key stakeholders:

- **Mapping key areas of exposure across the region ($400,000).** This exercise will evaluate and map across the Africa region (approximate 12-13 representative countries in the region, where there are known environmental health risks associated with extractive industry and urban sector) key health and environmental data, knowledge, risks and impacts, including identification and delineation of key hotspots based on environment and health risks. In addition, stock-taking exercise will be undertaken covering the regulatory framework and institutional mechanisms that are currently used to identify, regulate and monitor environmental health risks associated with harmful chemicals and substances, such as mercury and PCBs; including analyses of effectiveness of current system and identify entry points for immediate and long term interventions to address these risks. This will include review of current environmental policies and regulations and institutional capacity to monitor; screen and evaluate health and environmental risks associated with ASGM sector and urban sector. A review will be undertaken of current financial incentives; regulations regarding hot spots near sensitive habitat; safety and contamination of public resources; institutional capacity for pollution control; health and environmental assessments, monitoring and reporting.

[15] WHO: Children's Environmental Health: E-waste

- **Analysing the environmental health and socio-economic consequences of land degradation from toxic chemicals, and opportunity costs associated with management of chemical and hazardous wastes ($700,000).** Building upon the previous tasks, this will involve assessing for few selected countries (anticipated to be 2-3) economics of available and innovative options for minimizing and controlling the use of hazardous chemicals, including impact on land degradation, for example in case of mercury (use of retorts, for example) to reduce its impacts or to discourage the use of mercury and promote acceptable alternatives (such as Borax) without impacting the livelihood and employment opportunities of ASGM. This component will also look into the ways to decrease in economic and socially acceptable manner the impact of chemical pollution emanating from unregulated landfills. While recognizing that the risks of exposure, scope of regulations and capacity of enforcement and environmental health consequences of poor management of chemicals may vary among countries and regions, it is important to develop a shared regional economic approaches and solutions for eliminating hazardous chemicals and waste, including contaminated sites.
- **Develop and support awareness raising program on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste ($200,000).** Awareness building workshops and other communications tools will be developed to increase awareness about health risks and impacts on communities and surrounding environment. An effective awareness program could be based on the innovative use of ICT and disclosure. The goal being to complement efficiently any on-going awareness raising programs. Based on research, discussions and external input from many partners, a road map for an awareness raising program under the GEF 6 program within Africa and outside Africa will be proposed.

Key Output of Component 1

- **Country Reports** Mapping key areas of exposure to contamination across key countries in the Africa region (8 countries Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria)
- **Report with detailed site investigation of environmental health and socio-economic** consequences of hotspots of land degradation from toxic chemicals, and opportunity costs associated with management of chemical and hazardous wastes (2-3 Countries out of 8 countries above)
- **Awareness raising program** on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste.

Component 2: Building Partnership within the Africa region for elimination and reduction of harmful chemicals and waste in Africa ($250,000): Building on the mapping and exercise involving detailed analyses, this component will support the building of partnership with selected countries in Africa (Senegal, Mali, Burkina Faso , Ghana, Tanzania) to identify risks and develop approaches for reduction of harmful chemicals, including national governments and ministries such as environment, health, urban, energy; international and national NGOs, other development agencies (African and International), financial institutions. This component will support dialogues, workshops and pilot interventions to build constituencies for the larger program. Additional partnerships and pilot interventions to be identified during preparation would also be supported.

Key Output of Component 2

- **Alliance established with Environment Regulators and Mining Institution ($100,000):** Dialogue with government institutions to discuss key policy requirements, regulations and plans to address gaps in 8 countries Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria.
- **Alliances established with Scientific and Sector Institutions ($100,000):** to analyse environmental health risks and socio-economic impacts associated with land degradation from toxic chemicals, and identifying approaches to address these concerns in a medium term basis
- **Alliances established with other development partners**, such as UNIDO, UNEP, WHO etc **($50,000):**. for assisting African countries to prepare inventory of contaminated sites; existing knowledge base to address key concerns related to minimizing impacts on people and surrounding environment; and develop institutional capacity to address environmental health and socio-economic consequence of unregulated hazardous chemicals and waste site.

Component 3: Regional Program Development ($450,000). This component will integrate the results of Component 1 and 2, carry out consultations with additional counterpart countries, stakeholders and donors to design a large global program for the Africa region to address risks associated with management of harmful chemicals and hazardous waste. Countries that face serious environmental health and socio-economic risks associated with management of harmful chemicals and hazardous waste will be invited to form part of the program using various sources of funding such as IDA funding, GEF, other donors funding and commitments.

GEF Budget by Project Components

Components and Activities	Expenditure (US$)	Subtotal
Component 1: Support Analytical Studies and Regional Strategies to address the risks associated with chemical waste management		**1,200,000**
1.1 **Mapping key areas of exposure across the region** (8 countries Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria)	350,000	
1.2 **Analyzing the environmental health and socio-economic** consequences of land degradation from toxic chemicals, and opportunity costs associated with management of chemical and hazardous wastes (2-3 Countries out of 8 countries above)	650,000	
1.3 **Develop and support awareness raising program** on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste	200,000	
Component 2: Building Partnership within the Africa region for elimination and reduction of harmful chemicals and waste in Africa		**220,000**
2.1 Alliance with Environment Regulators and Mining Institution	90,000	
2.2 Alliance with Scientific and Sector Institutions	90,000	
2.3 Alliances with other development partners, such as UNIDO, UNEP, WHO etc.	40,000	
Component 3: Regional Program Development with specific projects in selected countries based on prioritization of health risks	**400,000**	**400,000**
TOTAL		**2,000,000**

GEF Budget by project components and expenditure categories

Components and Activities	Expenditure Categories				
	Fees	**Travel**	**Facilitator**	**Training & Workshop**	**Publications**
Component 1: Component 1: Support Analytical Studies and Regional Strategies to address the risks associated with chemical waste management					
1.1 **Mapping key areas of exposure across the region** (8 countries Ghana, Tanzania, Zimbabwe, Mali, Senegal, Burkina Faso, Uganda and Nigeria)	130,000	100,000		120,000	
1.2 **Analyzing the environmental health and socio-economic** consequences of land degradation from toxic chemicals, and opportunity costs associated with management of chemical and hazardous wastes (2-3 Countries out of 8 countries above)	350,000	200,000		100,000	
1.3 **Develop and support awareness raising program** on Environmental health and socio-economic consequence of unregulated hazardous chemicals and waste	50,000	50,000	50,000	50,000	
Component 2: Building Partnership within the Africa region for elimination and reduction of harmful chemicals and waste in Africa					
2.1 Alliance with Environment Regulators and Mining Institution	25,000	30,000		35,000	
2.2 Alliance with Scientific and Sector Institutions	25,000		20,000	35,000	10,000
2.3 Alliances with other development partners, such as UNIDO, UNEP, WHO etc.	20,000	20,000			
Component 3: Regional Program Development with specific projects in selected countries based on prioritization of health risks					
3.1 Program Development	180,000	80,000	10,000	130,000	
TOTAL	**780,000**	**480,000**	**80,000**	**470,000**	**10,000**

ANNEX E: INCREMENTAL COST ANALYSIS

Rationale

As per recent estimates[16], more than 200 million people exposed to toxins at dangerous levels in the developing world. Wealthy countries have shifted manufacturing and mining to poorer countries with inadequate pollution controls, while the local populations have borne the health burden of environmental contamination. Many sites belonging to smaller local chemical companies, abandoned sites, or artisanal sites continue to remain the main source of exposure to environmental contamination in several countries. These contamination caused by multiple contaminants such as mercury, lead, persistent organic pollutants, electronic waste etc. have reportedly caused death and disability; reduced life expectancy; reduced IQ; genetic damage; cancer; increased susceptibility to infection.

Problems due to environmental contamination is often associated with people struggling to make a living and unaware of long term health impacts, usually arising from inefficient use of materials and resources, in industry, agriculture and mining. Experts believe that long term solutions should be based on building partnership across institutions and stakeholders; finding and sharing cleaner and simpler ways of addressing environmental health impacts on community using an area-based approach; and adopting an integrated approach to environmental health issue that tends to complex with strong linage to social and economic wellbeing.

This Medium Size GEF project is requested from the GEF to support selected activities and consultations with the aim of designing a larger program to address in an integrated manner environmental health risks of multiple pollutants including mercury; lead; POPs and other harmful chemicals including e-waste processing and recycling in Africa. A programmatic and regional approach to chemicals management in Africa, based on building political commitment to strengthen capacity to analyse and plan, to reduce the risk of environmental health risks resulting from management of chemicals and building capacity will provide the platform for subsequent national efforts to strengthen management of environmental health, economic and social risks from chemicals. The project will provide the framework for new regional partnerships, linking the efforts of national governments and NGOs to better address risks of chemicals management.

The incremental reasoning is structured around providing the specific contexts for mercury, e-waste and urban dumping of POPs and other heavy metals using an area based approach. The MSP is expected to offer a menu of options that potentially interested countries can pick from using an area based approach. The proposed approach under the MSP will focus on finding an integrated solution for an area that focuses on changing the baseline of environmental health risks and impacts for affected population rather than one particular type of pollutants.

Baseline Context

1. *Mercury Use in Artisanal Gold Mining*

Africa hosts a third of the world's mineral wealth, including significant deposits of globally known reserves of gold. The mining sector is amongst the fastest growing sectors in several African nations,

[16] Blacksmith Institute 2013

such as Tanzania, Ghana and Zimbabwe, Mali, Senegal, Burkina Faso and Uganda. In Tanzania, the third largest producer of gold in Africa, revenue from gold exports increased over 35 % from 2011 to 2012. The mineral sector remains critical to in most African countries development, and has been an important contributor to the national economy despite fall in metal prices like gold experienced during the year 2013. However, mining of gold in most African countries is generally characterized by few large scale mechanized operations, hundreds of medium sized operations and tens of thousands of small scale operations carried out by millions of local entrepreneurs, panners or artisans, who use mercury (a known neurotoxic chemical) as an essential input to extract gold. Exposure to mercury damages the brain, central nervous system, and kidneys, and is particularly dangerous to babies and children as it retards brain development, causing irreversible damage and stunting growth in young children and unborn babies through poisoning of food chain. It is estimated that about 6 to 9 million artisanal and small scale miners, mostly from poor and vulnerable background are active in the gold and diamond sectors, which constitute more than half of all mineral exploitation worldwide. Unplanned and unregulated artisanal and small scale gold mining (ASGM) in countries like Tanzania has generally left a legacy of severe adverse (and irreversible) environmental health, economic, and social impacts, often affecting disproportionately the poorest and most vulnerable communities.

According to UNEP's, an estimates 3.5 million people are at risk of health impacts in the artisanal and small scale gold mining (ASGM) sector of which 2.5million are in Africa. Also as per 2013 report by Human rights Watch (HRW) approximately 30-50% of labor force working in the ASGM sector is children. According to the ASGM council, the gold mining sector employs estimated 10-12 million people worldwide, and indirectly supports more than 100 million people. It also estimates that ASGM accounts for approximately 15% of the world's gold production or about 400 tons per annum, thereby injecting roughly US$17 billion directly into rural communities annually. Many ASGM activities are carried out near or upstream of streams and rivers that drain into or are in close proximity to major freshwater impoundments such as lakes and manmade reservoirs created by storage dams for water supply, irrigation and hydropower. These impoundments act as sinks for mercury that accumulates in sediments and bio-accumulates in fish and tissues of other aquatic species. In Tanzania, for example, ASGM is carried out near major freshwater lakes such as Victoria, Nyasa, Rukwa and Tanganyika which produce thriving fisheries for export and local consumption. By virtue of being close to ASGM areas, these freshwater bodies face real and growing risks of contamination if a government plan for managing mercury is not prepared and implemented in the near future.

Systematic, well organized government regulation, coupled with introduction of appropriate technology and knowledge for miners, consistently proves the most effective strategy for reducing impacts. Experts indicate the need to address the continued difficulties of addressing mercury use in ASGM gold communities by: i) raising awareness of mercury's impacts; ii) gauging communities' level of awareness about exposure to mercury's toxicity; and iii) more importantly, investigating how alternatives can be disseminated in light of new mercury treaty. Recent studies have proven that ASGM is the largest component of anthropogenic sources of mercury contamination globally; impacting many sectors. Mercury contamination is an urgent pollution problem with widespread consequences in many nations in Africa. Some of the key consequences of mercury contamination are highlighted below:

- Mercury is a dangerous neurotoxin with significant health and economic consequences. According to the Director General of the National Environmental Management Council (in Tanzania), "mercury contamination is a time bomb waiting to explode". Exposure to mercury damages the brain, central nervous system, and kidneys, and is particularly dangerous to babies and children as it retards brain development, causing irreversible damage and stunting growth in young children and unborn babies through poisoning of food chain.
- Mercury contamination has broader multi-sectoral risks beyond direct health risks to miners and their families. Mercury builds up in the food supply chain—soil, crops, sediments, water, and fish—and permanently ruins natural habitats. It also has important negative socioeconomic impacts on key sectors (health, agriculture, environment, fisheries, livestock, and water). In Tanzania, mercury is

estimated to be affecting over 2 million men, women, and children directly or indirectly. The medium and long term economic impacts of mercury contamination due to increased health and environmental costs are expected to be very high in Africa as proven by Global Mercury Project, however limited scientific assessment have been done so far for countries like Zimbabwe and Tanzania that could be translated into specific national action plan targeting specific hot spots.

- Mercury contamination poses potentially serious economic consequences to the lucrative local and regional fisheries with potentially grave economic consequences. Many ASGM activities are carried out near or upstream of streams and rivers that drain into or are in close proximity to major freshwater impoundments such as lakes and manmade reservoirs created by storage dams for water supply, irrigation and hydropower. These impoundments act as sinks for mercury that accumulates in sediments and bio-accumulates in fish and tissues of other aquatic species. In Tanzania, for example, ASGM is carried out near major freshwater lakes such as Victoria, Nyasa, Rukwa and Tanganyika which produce thriving fisheries for export and local consumption. These freshwater bodies face real and growing risks of contamination if a government plan for managing mercury is not prepared and implemented in the near future. Lake Victoria supports livelihood of nearly 30 million people from Kenya, Uganda, Tanzania, Rwanda, and Burundi and generates lucrative export fisheries worth nearly US $ 500 million annually. Zimbabwe's 8000 small, medium and large scale dams used for domestic water supply and irrigation are also important reservoirs for fisheries. The Kariba reservoir on the Zambezi River, shared by Zambia and Zimbabwe, and the Akosombo reservoir on the Volta River in Ghana were formed by dams for generating hydroelectricity; they also provide lucrative fisheries for local consumption and export. There is evidence that ASGM contamination is no longer localized. It is therefore only a matter of time for mercury contamination from ASGM to reach many lakes and reservoirs and contaminate the fish, if this is not already the case. Mercury contamination poses a serious risk to the lucrative local and export fisheries, including from the Great Lakes of Africa (Victoria, Tanganyika and Nyasa) as well as major reservoirs such as Kariba and Akasombo.
- Mercury used in ASGM is mostly obtained illegally, posing a serious governance challenge. It is estimated that 90 to 95 percent of mercury used in many African nations is obtained illegally and/or smuggled from neighbouring nations, representing a failure of governance. In 2011, it was estimated that 45 tons of mercury were used in Tanzania for ASGM by around 500,000 small-scale gold miners, including small children, mostly obtained illegally from neighbouring nations to extract gold with minimal protection. Whereas, the total amount of mercury imported officially in Tanzania was less than 2 tones. While there is need to plan and capacitate regular monitoring of mercury used in ASGM in most African countries, the trend in gold production and gold prices suggests rapidly increasing demand for and growing and widespread use of mercury, and therefore, by extension increasing contamination. Yet there is no systematic monitoring of mercury in place in most African countries. Current data and knowledge about the amount of mercury used or the severity and extent of mercury contamination and its health, environmental, and social impacts is limited, patchy or dated. There are no policies in place to regulate or manage the use of mercury. There are no regulations for controlling the importation or use of mercury except in few countries like Ghana. There are no government sanctioned guidelines for safe use of mercury in place that are being used, while many UN agencies have produced guidance manuals. Institutional capacity (both technical and administrative) and incentives to monitor use of mercury as well as its health and environmental consequences is limited in most African nations. There is therefore an urgent need to understand the institutional capacity constraints as and linkage between the environmental governance in pre-dominantly mineral based countries in Africa and its economic, environment and social implications,

such as in small scale gold mining activities, which has a widespread use of chemicals such as mercury with significant environmental health implications.

The environmental health implications of the use and release of mercury need urgent attention before they become unmanageable and irreversible. Experience from Japan, Indonesia, Philippines and Latin America nations has indicated the extremely high social, environmental health and economic costs of serious mercury contamination to communities, which most African nations cannot afford. Many poor ASGM workers, their family members and communities are getting exposed to mercury emissions without realizing, as it has no taste or smell, and it can bio-accumulate in fish and the animals that eat them. Mercury does most harm when people encounter it directly, either by exposing their skin to the element or inhaling its fumes. Many small-scale gold miners, their families and nearby communities both inhale toxic mercury fumes that travel very easily by wind and consume fish and other fauna contaminated by mercury on a regular basis. The aquatic environment is a critical pathway that links mercury to human health in three ways: a) hundreds of tons of mercury is released directly into or runs off in water bodies, however no assessment has been carried out to understand the anthropogenic impacts of mercury residue in runoff or water bodies; b) mercury in the aquatic environment can be transformed into methyl-mercury, which is far more toxic to humans and animals and can enter and bio-magnify in food webs more readily than other forms of mercury; and c) much human exposure to mercury is through the consumption of fish and other marine foods, making aquatic pathways the critical link to human health. Many African countries such as Tanzania and Zimbabwe, which are dependent on mineral resources, have several contaminated sites, including old mines, landfills, and waste disposal locations, with unknown impacts and risks due to mercury transported by air and releases to water and land. Field investigations supported by consultation with stakeholders will be needed to establish, evaluate and verify exposure to neighboring population due to mercury hotspots, and develop specific intervention to reduce the adverse implications. Detailed studies of selected spot will confirm the emissions estimates from this sector, including field measurements around ASGM sites to verify the amounts and fate of the mercury used, which can then be translated to develop the medium to long term estimate of environmental health and economic burden.

The recent global treaty on controlling the use of mercury provides an opportunity to catalyze actions on how a toxic compound can be used and managed in Africa to minimize its environmental health implications. A global binding treaty on mercury was adopted on October 11, 2013, which will come into force following ratification by at least 50 countries. The treaty, known as Minamata Convention on mercury, aims to regulate anthropogenic emissions and releases of mercury and its compounds in order to protect human health and the environment. Article 7 of the treaty states that each Party that has artisanal and small-scale gold mining and processing within its territory shall take steps to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, such mining and processing. Experts feel that unless the information on and understanding of the significant social, environmental health and economic consequences associated with mercury contamination is improved and communicated effectively to decision makers and translated into management plans, local communities that are facing some of the greatest health risks, particularly small-scale gold miners in the African countries, such as Tanzania and Zimbabwe will not benefit from the global treaty. Approximately 28 African Governments are working towards developing a draft roadmap which will also help them meet the requirements of the Minamata Convention.

Baseline Scenario for Mercury Use in Artisanal and Small scale Gold Mining

Under the baseline scenario, the many governments and international organizations would continue to implement some of these activities in a scattered manner. This could potentially widen the gap between national policy developments and undermine regional cohesion and harmonization as well as widen the gap between national dialogue and regional commitments. Increased attention by many organization to address the needs to address the environmental health implications of mercury use in Artisanal gold mining are not always optimally focused and do not necessarily contribute to knowledge sharing and cross-fertilization, and the achievement of economies of scale through well-coordinated implementation.

In addition an opportunity would be lost to bring together and allow for learning among national governments, international and national NGOs, other development agencies (African and International), regulators in gold producing countries, gold miners, mercury producers and traders as well as mining industry in general.

GEF Alternative

Considerable efforts and are being expended around several countries, related to the reduction of environmental health risks of ASGM sector following on recommendations of Minamata Convention. The ability to implement the Minamata convention, however will require the ongoing and increased efforts related to several factors and actions by many, including: 1) Mapping of risks; 2) Inventory and Characterization of environmental health risks and associated socio-economic impacts; 3) Implications due to degradation or contamination of land and water resources around such contaminated hot spots; and 4) ability of the government to prepare, find adequate resources and implement a national Action Plan. Incremental financing from the GEF MSP and support from the WB Development Grant Facility (DGF) provides an opportunity to address some of the constraints faced by the national and international community to tackle the environmental health issue related to these contaminants. With so many interested and active stakeholders (governments, NGOs, multi-lateral banks, bilateral financial agencies, etc.,), the proposed project will have a significant challenge but at the same time an incredible opportunity to finding an effective way to harness and optimize the delivery of diverse energies and investments. More than ever, coordinated and efficient actions underpinned by targeted interventions around hot spots will help address this critical environmental health issues at regional level in Africa.

The proposed activity under the component will support inventory and characterization of environmental health risks due to use of mercury in ASGM. This will lead to preparation of detailed plan of intervention for reducing such risks to affected population taking into account the economic benefit of jobs and income to artisanal workers. The MSP would consider the requirements and commitment of countries under the Minamata convention that requires participating countries to prepare a National Action Plan , including potential to remediate contaminated hot spots.

2. Electronic Waste in Sub-Saharan Africa

Over the past 10-20 years, the market for information and communications technology (ICT) has grown exponentially to at least US$2 trillion in 2013. While this growth has brought with it unprecedented socio-economic benefits related to access to technology, information and enhanced communication, the sky-rocketing numbers of devices and their typically, short life, have led to a growing, global environmental problem: electronic waste or, as it is more commonly known, e-waste. In recent years, with burgeoning markets for new and used technology in developing countries, as well as the growing trend of exporting e-waste for processing and 'recycling' overseas, the issue of e-waste has been migrating to developing countries in both Asia and Africa; countries which typically do not have the resources or infrastructure to manage the high volume, of often hazardous, waste. The number of African countries confronting this issue is large and growing.

The e-waste issue is complex. Looked at from one perspective, e-waste can be seen as a valuable commodity with quantities of gold, silver, copper, palladium and other compounds available through processing. From another perspective, e-waste is part of a serious hazardous waste problem confronting African countries, exposing people and the local and global environments to a range of toxic substances, including heavy metals, flame retardants and polychlorinated biphenyls (PCBs). In reality, both these perspectives are true yielding a multi-faceted issue that requires short-, medium- and long-term interventions by public and private stakeholders from across both the formal and informal sectors.

E-waste has serious negative consequences for human and environmental health and it is growing rapidly and exponentially in SSA. A recent analysis utilizing UN Comtrade data, for example, shows e-waste in Ghana growing from under 1,000 tons in the late 1990s to close to 14,000 tons of IT-associated waste projected by 2016. Pollution resulting from discarded e-waste and its processing has been shown to have serious adverse impacts on human and environmental health as well as on air, water, biota and land.

The Global Alliance on Health and Pollution currently estimates that over 3 million people are at risk of exposure to toxic chemicals through e-waste. Individuals at particular risk are the children and adults involved in the 'recycling' of e-waste where exposure to lead and cadmium from cathode ray tube (CRT) processing or to polycyclic aromatic hydrocarbons (PAHs) and other toxic chemicals from burning plastics and cables is common. Further human and environmental impacts stem from a range of toxic substances contained in e-waste that also persist in the environment and bio-accumulate, such as brominated flame retardants, heavy metals (e.g., lead, nickel, chromium, mercury), and persistent organic pollutants (e.g., dioxins, polychlorinated biphenyls (PCBs). Employing children in the dismantling and processing of e-waste is of particular concern. The Secretariat of the Basel Convention (SBC) recently reported that in some West African countries children as young as five undertake the dismantling of small parts and sorting of materials while older children participate in collecting, dismantling and processing. Due to their small size and stage of development, children are at higher risk from exposure to toxic chemicals than most adults. Globally humans and the environment are also at risk due to the range of toxic substances contained in e-waste that also persist in the environment and bio-accumulate, such as brominated flame retardants, heavy metals (e.g., lead, nickel, chromium, mercury), and persistent organic pollutants (e.g., dioxins, polychlorinated biphenyls --PCBs).

While these current trends tell a story of growing environmental and socio-economic risk for developing countries, the growth trends for ICT, also indicate the potential to invest in the future of Green ICT. Changing some elements of the equation may make it possible to create sustainable growth and positive local and global environmental impacts, including the reduction of carbon emissions and unnecessary mining.

Global ICT and E-waste

While growth rates for the global ICT market have varied slightly over the past few years, the overall trend has been for rapid, upward growth. Growth rates of 5 percent were recorded in 2013 for global ICT markets and are predicted to maintain the same pace over the next two years, with the market reaching US$2.14 trillion in 2015, according to the most recent reports of the International Data Corporation (IDC). Almost one-half of the growth expected in 2014 is attributable to smart phone and tablet shipments with this category driving the ICT trend. Given the rapid bridging of the digital divide, developed countries will set, although with a time lag, the future trend of ICT products. Electronic components still account for 52 percent of total ICT in developing countries showing that the flourishing business of updating, repairing and refurbishing ICT requires the continued import of Electronic Components. In its report, 'Where are WEEE in Africa?" the SBC indicates that e-waste and used electronic equipment (EEE) is being exported to developing countries through a variety of formal and informal channels. Particular elements of this global trade that eventually impact developing countries, include the export of used EEEs close to the end of their useful life; the export of erroneously labeled used EEE which is, in fact, inoperable; and the export of e-waste itself for recycling and processing. This results in what becomes a de facto 'dump' of e-waste from developed to developing countries. At the global level, and based on the EU broader definition of e-waste, the trend of EEE volume is quasi-mirrored by the volume of e-waste generated that reached 48.9 million tonnes in 2012. Ranked by major estimated e-waste generators, the EU, US, Japan, China and India represents 66 percent of the e-waste generated globally. Other countries, including those in Africa, account for the remaining 34 percent of the total as reported by UNCTAD.

The Impact E-waste on Sub Saharan Africa

To a large degree, these global trends are being, or are soon to be echoed, in SSA. For example, from 2004 to 2012 (considering internet use as a proxy), the number of internet users (per 100 people) in SSA increased from 1.6 million to 15.3 million in the eight-year period. The growth in internet access and ICT has been coupled with economic growth and it is clear why – quicker access to information, financial flows, etc. enhance not only business, but governance and access to services, as well. Household computer remains relatively low with an average of 7.8 percent of household having a computer against 76.2 percent in Europe in 2012 with large variation across countries, i.e., 45 percent in Mauritius and the Seychelles, and a mere 0.1 percent in Burundi. These market trends for ICT in SSA are further fed by investments in the public sector and a range of bilateral and multilateral support for development through investment in ICT in an ever-broadening and diverse range of sectors from health and education to good governance and sound urban development. Studies indicate that Ghana, Kenya and Nigeria have the highest levels of e-waste in the region due to their steadily growing involvement in the ICT importing, recycling and refurbishing sectors. E-waste processing in Benin, Kenya, Liberia, Senegal, Tanzania and Uganda can mainly be categorized as small-scale informal e-waste collection and dismantling. In Côte d'Ivoire, Ghana and Nigeria the sector utilizes primarily small scale established e-waste collection, pre-processing and refining. Both groups have potential to continue in a more sustainable pre-processing industry with the right support in terms of capacity building and knowledge exchange.

Investment in ICT has been shown to have a positive effect on growth and also to expand access to information in education, health and environment for a range of stakeholders, including the possibility of empowering civil in SSA. However, it is important to keep in mind the full life cycle of these investments, as well. The growth of ICT inevitably leads to the growth in e-waste and given that "50 – 80 % of the global e-waste flow is handled by informal sectors in developing countries, where the recycling process itself generates environmental and human health impacts," it makes sense to begin now to work towards a Green ICT approach.

The current International, Regional and Local Response

While still limited, a range of existing and new international and national regulatory instruments, policies and public-private initiatives are being drawn upon to begin to address e-waste. These instruments include existing global and regional environmental conventions such as the Basel Convention on the Transboundary Movement of Hazardous Waste, the Stockholm Convention on Persistent Organic Pollutants and the Bamako Convention, UN programs such as 'Solving the E-waste Problem (StEP) and programs of various regional organizations, such as the East African Communications Organisation. Other initiatives within particular SSA countries cover a broad range of intervention approaches from e-waste strategies to pilots of take back schemes to large-scale public-private investments in state of the art recycling facilities, such as the Hewlett-Packard-Kenyan initiative. While success has varied in their implementation, these projects, policies and instruments provide a strong base upon which to build an integrated approach to e-waste management and Green ICT.

Baseline Scenario for ICT and E-waste

Our assessment indicate that most impacted African countries are characterized by lack of existing data on e-waste; illegal import of e-waste under the category of second-hand goods; flouting of Basel Convention regulations by 'importers;' difficulty tracking the flow of products over borders in personal luggage or other smuggling operations; unclear or poor labeling standards in export countries; under-funded and under-trained Customs; Weak or non-existent legislation, regulation and policies; Lack of financial resources to enforce authority where it exists; presence of similar toxic compounds in the Electrical and Electronic Equipment (EEE) waste stream, including heavy metals, persistent toxic substances, and brominated flame retardants all determined to have serious effects on human and environmental health; and some positive initiatives to address e-waste, including pilot recycling projects, take back schemes, Public-Private Partnerships, and e-waste guidance and legislation.

GEF Alternative

E-waste processing and recycling in SSA as it is currently practiced is, for the most part, inefficient and hazardous. However, there are significant possible environmental and economic gains that could be made on both a nation and global level with investments in safe and efficient practices and technologies. The Bank's 2012-2022 Environment Strategy supports an integrated approach to growth focusing on supporting the conditions and creating an environment for green, more-inclusive growth. Key among its priorities for the development of a "clean agenda" is an expanded focus on pollution management. The Strategy recognizes that the Bank's work on green growth cannot succeed without attention to the excessive pressure being placed on air, water and soil.

The activity under this MSP would assess and enhance the Africa region's ability to address the existing baseline with respect to handling, recycling and management of e-waste. The MSP will support studies to analyze the growth in ICT and in e-waste following a 'life cycle' approach and recommend solutions in moving from a post-problem 'clean up' approach to a value-added approach that supports building a healthy, sustainable industry which can create an impressive range of positive impacts on the national, regional and global levels. This will enhance understanding of this complex issue while bringing to light the opportunities for sustainable e-waste management and 'green growth' that are made possible through taking a life cycle approach to ICT. The Regional program will identify, through the country studies, a range of initiatives as building blocks for developing recommendations and a way forward to ensure a value added approach to the e-waste sector in SSA.

ANNEX F: Overview of GEF-supported POPs and chemicals activities in Africa

1. The Program will learn from the experience and build upon Persistent Organic Pollutants and chemicals management activities supported by the GEF and others in Africa. These activities broadly fall into the following categories: NIP development, PCB management, obsolete pesticides, dioxins, mercury, monitoring, DDT for disease vector control, and contaminated sites (see list of projects in Addendum to Annex F).

2. **National Implementation Plan (NIPs)**. Since the first National Implementation Plan (NIP) proposal approved in Africa for Ghana in early 2002, all African countries parties to the Stockholm Convention have received funding to prepare a NIP, and most have submitted their NIP to the Convention Secretariat. 21 countries in Africa have recently received GEF funding towards the review and update of their initial NIP.

- The NIP includes an overview of POPs issues in the country and a preliminary inventory of the original 12 POPs, leading to initial priorities for capacity building and investments. Whilst the NIPs can be of unequal quality in terms of quantitative analysis, they represent a basis on which the Program can build. Moreover, the NIP development effort was the opportunity to establish or strengthen multi-sectoral national coordination committees. The Program will reach out to the Stockholm Convention focal points and make use of the existing coordination structures where possible and appropriate.

- Moreover, the Program is set in the context of the on-going international "synergies" efforts to bring closer together the Basel, Rotterdam and Stockholm Conventions. This approach has the potential to better align with development priorities and to make best use of limited country capacity. The Program will take an integrated approach to chemicals management, thereby translating the synergies paradigm on the ground for the benefit of client countries.

3. **Polychlorinated Biphenyl (PCB) management**. Projects to manage polychlorinated biphenyls have been approved and are at various stages of implementation for Congo, Ghana, Mauritius, and Rwanda. Typical activities under these projects address the electrical sector and would be: test and inventory on-line equipment; retire equipment based on quantity of PCBs, location and age; set up/upgrade temporary and safe storage for PCB solid and liquid waste, including off-line equipment; and export for destruction within limits of project funds. In some cases, facilities are being set up for recycling, with the advantage of leading to less waste to export, and allowing recovery of resources from scrap metal and copper).

- UNEP is implementing through the Basel/Stockholm regional centre an ambitious regional project in West and Central Africa (Burkina Faso, Benin, Cote d'Ivoire, Djibouti, Guinea, Guinea-Bissau, Morocco, Mali, Mauritania, Niger, Senegal, Chad, Togo, Congo DR). The project's approach is to create enough volume regionally to support investment in transformer recycling and contaminated mineral oil decontamination, thereby leaving only the most concentrated PCB oils and capacitors having to be exported for disposal by high

temperature incineration in Europe. Finally, a PCB management project in Nigeria is at early stage of implementation with the Region.

4. **Obsolete pesticides**. A number of projects are under implementation that address inventory, removal, clean up and disposal of stocks of obsolete pesticides, as well as putting in place "prevention" measures and policies to prevent reoccurrence of stocks. Typically these projects have addressed all obsolete pesticides, not just POPs. The Africa Stockpiles Program (Ethiopia, Mali, Nigeria, South Africa, Tanzania), was led by the Bank and lessons learned will be incorporated in the design of the Program.

- Following on the ASP, FAO is implementing similar projects in Benin, Botswana, Cameroon, Eritrea, Malawi, and Mozambique, and a regional approach in the CILSS countries (Burkina Faso, Cape Verde, Gambia, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, Tchad).

5. **Dioxins**. A number of projects addressing dioxins emissions from open burning of solid waste have been supported (Nigeria, Senegal, and a regional UNIDO project covering Botswana, Ethiopia, Lesotho, Madagascar, Mozambique, Sudan, Swaziland, Tanzania, Uganda, and Zambia). These projects seek to increase collection, and decrease of both collected and uncollected waste.

- One multi-country project seeks to reduce dioxins and mercury releases from medical waste (Ghana, Madagascar, Rwanda, Tanzania), building on previous efforts of UNDP in collaboration with Healthcare Without Harm and WHO (with pilot countries in Senegal and Tanzania).

- In Ethiopia, a project with UNIDO is building on previous Bank activities in the context of an ICT project and is addressing e-waste.

6. **Least Developing Countries (LDCs)**. Under GEF-4 the GEF supported 3 regional projects led by UNIDO and UNEP and specifically targeting LDCs, to be implemented 2012-2016. UNEP supports capacity building and regulatory strengthening; UNIDO supports activities related to BAT/BEP with a focus on the informal sectors, and contaminated sites. The Program will establish linkages with these regional projects in any country where pilot activities would take place. The countries covered are Botswana, Ethiopia, Gambia, Kenya, Liberia, Madagascar, Mozambique, Namibia, Senegal, Swaziland, Tanzania, Uganda, South Africa, Zambia, Zimbabwe Angola, Lesotho, Mozambique, Swaziland, Tanzania, Burkina Faso, Benin, Central African Republic, Cape Verde, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Sierra Leone, Senegal, Sao Tome and Principe, Chad, and Togo.

7. **Mercury**. The GEF supported a UNDP/UNIDO multi-country project addressing artisanal gold mining approved in 2002, with pilots in Sudan, Tanzania and Zimbabwe. The "Global Mercury Project" supported regulatory strengthening and promotion of low tech equipment to reduce mercury emissions: retorts and hoods. UNIDO is following up with a

recently approved small (MSP) project in Burkina Faso, Mali and Senegal. (See table of highest ASGM mercury emitting African countries in annex).

8. **Monitoring**. UNEP has been implementing a number of regional projects to strengthen laboratory capacity and allow countries to participate in the effectiveness evaluation effort under the Stockholm Convention. (Covering: Ethiopia, Ghana, Kenya, Morocco, Mali, Mauritius, Senegal, Togo, Tunisia, Tanzania, Uganda, Zambia, Congo DR). This capacity can be a resource for the Program.

9. **Alternatives to DDT for vector control**. A cluster of projects led by UNEP/WHO demonstrate and promote alternatives and strengthen capacity for Integrated Vector Management, covering Botswana, Ethiopia, Gambia, Kenya, Liberia, Madagascar, Mozambique, Namibia, Senegal, Swaziland, Tanzania, Uganda, South Africa, Zambia, Zimbabwe.

10. **Contaminated sites**. A UNIDO-led regional project in Ghana and Nigeria addresses the development of toolkits for the identification and assessment of contaminated sites.

11. The World Bank supported Development Grant facility to create Global Partnership to address environmental health and pollution issues. This partnership working with Blacksmith Institute, governments, the international community, NGOs and local agencies is assisting to design a formal mechanism on an international scale that would deal with toxic legacy pollution and its health effects in low- and middle-income countries, and would assist local communities to protect and improve their health and livelihoods. In particular, it has in Africa region has mobilized GAHP members and expanding the inventory of toxic hotspots, health impacts, and raising awareness on the global scope of legacy pollution and its health and socio-economic impact. GAHP has been receiving expression of interest by many country governments, including specific requests to prepare national Toxic Action Plan from the Ministry of Environment of Madagascar, Senegal, Kenya, Tanzania etc.

12. **Conclusion**. Although the coverage of GEF POPs activities is broad, in fact there are not that many projects that have delivered on the ground yet. Moreover, many of the projects are regional projects that do not support significant investments on the ground. The efforts envisaged under this Program are complementary and will build upon these existing activities, while creating the conditions for mainstreaming of the Chemicals agenda within development priorities and scaling up.

Addendum to Annex F: GEF financed POPs and Mercury Projects Africa

Project Title	Agency	List of participating countries	GEF Amount
Demonstrating Cost-effectiveness and Sustainability of Environmentally-sound and Locally Appropriate Alternatives to DDT for Malaria Control in Africa	UNEP	Eritrea, Ethiopia, Madagascar	5,485,466
Africa Stockpiles Program, P1	World Bank/FAO	Ethiopia, Morocco, Mali, Nigeria, Tunisia, Tanzania, South Africa	25,000,000
Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Algeria	UNIDO	Algeria	494,000
Enabling Activity to Facilitate Early Action on the Implementation of the Stolckholm Convention on Persistent Organic Pollutants in Central African Republic	UNIDO	Central African Republic	479,000
Initial assistance to Morocco to meet its obligations under the Stockholm Convention on Persistent Organic Pollutants (POPs).	UNDP	Morocco	496,800
Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants in Gabon	UNIDO	Gabon	422,500
Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Sao Tome and Principe	372,900
Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Malawi	496,500
Enabling activities for the Stockholm Convention on Persistent Organic Pollutants (POPs): National Implementation Plan for Mauritius	UNDP	Mauritius	356,400
Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Liberia	UNIDO	Liberia	372,000
Initial assistance to Sudan to meet its obligations under the Stockholm Convention on Persistent Organic Pollutants (POPs).	UNDP	Sudan	500,000
Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Rwanda	UNIDO	Rwanda	371,000
Enabling activity for the preparation of a National Implementation Plan (NIP) on POPs for Burkina Faso	UNDP	Burkina Faso	471,899
Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants	UNIDO	Botswana	456,000

(POPs) in Botswana			
Initial Assistance to the Union of the Comoros for Enabling Activities to Implement the Stockholm Convention on POPs	UNDP	Comoros	390,000
Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on POPs in Sierra Leone	UNIDO	Sierra Leone	394,600
Demonstration of Sustainable Alternatives to DDT and Strengthening of National Vector Control Capabilities in Middle East and North Africa	UNEP	Djibouti, Egypt, Iran, Jordan, Morocco, Sudan, Syria, Yemen	4,913,114
Regional Project to Develop Appropriate Strategies for Identifying Sites Contaminated by Chemicals listed in Annexes A, B and/or C of the Stockholm Convention	UNIDO	Ghana, Nigeria	2,000,000
Demonstration of a Regional Approach to Environmentally Sound Management of PCB Liquid Wastes and Transformers and Capacitors Containing PCBs	UNEP	Burkina Faso, Benin, Cote d'Ivoire, Djibouti, Guinea, Guinea-Bissau, Morocco, Mali, Mauritania, Congo DR Niger, Senegal, Chad, Togo,	4,889,479
Capacity Building for PCB Elimination	UNDP	Ghana	3,500,000
Promotion of Strategies to Reduce Unintentional Production of POPs in the PERSGA Coastal Zone	UNIDO	Egypt, Jordan, Sudan, Yemen	950,000
Demonstrating and Promoting Best Techniques and Practices for Managing Healthcare Waste and PCBs	World Bank	Tunisia	5,500,000
Safe Management and Disposal of PCBs, Pillar I	UNDP	Morocco	2,198,000
Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on POPs	UNIDO	Eritrea	346,500
Preparation of the POPs National Implementation Plan under the Stockholm Convention	UNDP	Congo DR	499,800
Sustainable management of POPs in Mauritius	UNDP	Mauritius	902,250
DSSA Malaria Decision Analysis Support Tool (MDAST): Evaluating Health Social and Environmental Impacts and Policy Tradeoffs	UNEP	Kenya, Tanzania, Uganda	999,000
Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Angola	UNIDO	Angola	471,600
Enabling activities for the development of a National Implementation Plan as a first step to implement the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Swaziland	356,000
Supporting the Implementation of the Global Monitoring Plan of POPs in Eastern and Southern African Countries	UNEP	Ethiopia, Kenya, Mauritius, Uganda, Zambia	440,000
Supporting the Implementation of the Global Monitoring Plan of POPs in West Africa	UNEP	Ghana, Mali, Nigeria, Senegal, Togo, Congo DR	530,000

Less Burnt for a Clean Earth: Minimization of Dioxin Emission from Open Burning Sources	UNDP	Nigeria	4,150,000
Safe PCB Management Programme in Morocco, Pillar II	UNIDO	Morocco	2,450,000
Sustainable Persistent Organic Pollutants Management Project	World Bank	Egypt	8,100,000
AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the SADC Subregion	UNEP/UNIDO	Angola, Lesotho, Mozambique, Swaziland, Tanzania	3,000,000
AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the COMESA Subregion	UNEP/UNIDO	Burundi, Djibouti, Ethiopia, Rwanda, Sudan, Uganda, Congo DR	5,000,000
AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the ECOWAS Subregion	UNEP/UNIDO	Burkina Faso, Benin, Central African Republic, Cabo Verde, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Sierra Leone, Senegal, Sao Tome and Principe, Chad, Togo	8,000,000
Demonstration Project for Decontamination of POPs Contaminated Soils Using Non-thermal Treatment Methods	FAO	Botswana	1,363,000
Disposal of POPs Wastes and Obsolete Pesticides	FAO	Mozambique	1,950,000
Eritrea: Prevention and Disposal of POPs and Obsolete Pesticides	FAO	Eritrea	2,150,000
AFLDC Program: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) and Small Islands Developing States (SIDS)	UNEP/UNIDO	Regional	
Management of PCBs stockpiles and equipment containing PCBs	UNDP	Rwanda	950,000
Africa Stockpiles Program (ASP) - Project 1- Supplemental Funds for Disposal and Prevention	World Bank	Mali, Tunisia	3,960,000
PCB Management and Disposal Project	World Bank	Nigeria	6,300,000
Protect Human Health and the Environment from Unintentional Releases of POPs Originating from Incineration and Open Burning of Health Care- and Electronic-waste	UNDP	Egypt	4,100,000
Environmentally Sound Management of POPs and Destruction of PCBs Wastes	UNIDO	Algeria	6,300,000
Improve the Health and Environment of Artisanal and Small Scale Gold Mining (ASGM) Communities by Reducing Mercury Emissions and Promoting Sound Chemical Management	UNIDO	Burkina Faso, Mali, Senegal	990,000

Reducing UPOPs and Mercury Releases from the Health Sector in Africa	UNDP	Ghana, Madagascar, Rwanda, Tanzania	6,453,195
Disposal of POPs and Obsolete Pesticides and Strengthening Sound Pesticide Management	FAO	Cameroon	1,710,000
Demonstration of Effectiveness of Diversified, Environmentally Sound and Sustainable Interventions, and Strengthening National Capacity for Innovative Implementation of Integrated Vector Management (IVM) for Disease Prevention and Control inthe WHO AFRO Region	UNEP	Botswana, Ethiopia, Gambia, Kenya, Liberia, Madagascar, Mozambique, Namibia, Senegal, Swaziland, Tanzania, Uganda, South Africa, Zambia, Zimbabwe	15,491,700
Disposal of Obsolete Pesticides including POPs and Implementation of Pesticides Management Programme	FAO	Morocco	3,500,000
Disposal Of Obsolete Pesticides Including POPs And Strengthening Pesticide Management In The Permanent Interstate Committee For Drought Control In The Sahel (CILSS) Member States	FAO	Burkina Faso, Cabo Verde, Gambia, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, Chad	7,450,000
Disposal of POPs and Obsolete Pesticides and Strengthening Life-cycle Management of Pesticides	FAO	Benin	1,830,000
Continuing Regional Support for the POPs Global Monitoring Plan under the Stockholm Convention in the Africa Region	UNEP	Egypt, Ethiopia, Ghana, Zambia, Kenya, Morocco, Mali, Mauritius, Senegal, Togo, Tunisia, Tanzania, Uganda, Congo DR	4,208,000
Environmentally Sound Management of Municipal and Hazardous Solid Waste to Reduce Emission of Unintentional POPs	UNIDO	Senegal	2,000,000
Development of a National Implementation Plan for Namibia to Facilitate its Implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNEP	Namibia	277,200
Enabling Activities to Review and Update the National implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Swaziland	198,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Sudan	198,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Algeria	181,592
Enabling activities to review and update the national implementation plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Togo	179,290
Investment Promotion on Environmentally sound Management of Electrical and Electronic Waste: Up-Scale and Promotion of Activities and Initiatives on Environmentally Sound Management of Electrical and	UNIDO	Ethiopia	1,000,000

Electronic Waste			
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Burkina Faso	169,340
Emission Reduction of Unintentional Persistent Organic Pollutants from Priority Sources and Elimination of PCBs in Industrial and Small-power Sectors	UNIDO	Gabon	2,500,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Tanzania	210,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Ethiopia	227,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs	UNIDO	Liberia	160,000
Pesticide Risk Reduction in Malawi	FAO	Malawi	2,550,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Congo DR	199,870
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Seychelles	140,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Guinea	180,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Zambia	170,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs) in Mozambique	UNIDO	Mozambique	180,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Central African Republic	190,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Nigeria	225,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs) in Sao Tome	UNIDO	Sao Tome and Principe	170,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic	UNIDO	Lesotho	150,000

Pollutants (POPs)			
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Rwanda	180,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Tunisia	220,000
Promotion of BAT and BEP to Reduce uPOPs Releases from Waste Open Burning in the Participating African Countries of COMESA-SADC Subregions	UNIDO	Botswana, Lesotho, Madagascar, Mozambique, Swaziland, Tanzania, Zambia	6,615,000
Environmentally Sound Management and Final Disposal of PCBs	UNIDO	Congo	975,000
POPs Pesticides Management Project	World Bank	Cote d'Ivoire	7,000,000
PCB Reduction In Cameroon Through The Use Of Local Expertise And The Development Of National Capacities	UNEP	Cameroon	3,000,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Congo	170,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Senegal	170,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Niger	190,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Guinea-Bissau	175,000
Enabling Ctivities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Cote d'Ivoire	200,000
Disposal of PCB Oils Contained in Transformers and Disposal of Capacitors Containing PCB in Southern Africa	UNEP	Botswana, Lesotho, Madagascar, Mauritius, Malawi, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Zambia, Zimbabwe	7,710,000
Reducing environmental health impacts of harmful pollutants in africa region	World Bank	Africa	2,000,000
Review and update of the national implementation plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNEP	Morocco	200,913
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Eritrea	170,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic	UNIDO	Uganda	185,000

Pollutants (POPs)			
Review and Update of the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs) in Zimbabwe	UNEP	Zimbabwe	109,589
Lead Paint Elimination Project in Africa	UNEP	Cote d'Ivoire, Cameroon, Ethiopia, Tanzania	1,000,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs) in the Republic of Mali	UNIDO	Mali	225,000
Sound Chemicals Management Mainstreaming and UPOPs Reduction in Kenya	UNDP	Kenya	4,515,000
Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)	UNIDO	Cabo Verde	170,000
Microbial Larviciding, Human Health, and the Control of Malaria	UNEP	Tanzania	975,000
Demonstration of BAT/BEP for the reduction of Unintentionally produced Persistent Organic Pollutants (U-POPs) and Polybrominated Diphenyl Ethers (PBDEs) releases from e-waste recycling and disposal	UNIDO	Nigeria	1,726,000
Strengthen National Decision Making Towards Ratification of the Minamata Convention and Build Capacity Towards Implementation of Future Provisions.	UNDP	Mauritius	199,749
Development of Minamata Convention on Mercury Initial Assessment in Africa	UNEP	Ethiopia, Gambia, Tanzania, Uganda, Zambia	913,242
Minamata Convention Initial Assessment in the Comoros	UNIDO	Comoros	200,000
Minamata Convention Initial Assessment in the Federal Republic of Nigeria	UNIDO	Nigeria	1,000,000
Development of Minamata Initial Assessment in Madagascar	UNEP	Madagascar	182,648
Development of Minamata Convention on Mercury Initial Assessment in Africa (Angola, Malawi and Zimbabwe)	UNEP	Angola, Malawi, Zimbabwe	547,945

ANNEX G: Top ASGM Mercury Emitting African Countries
(Adapted from AMAP/UNEP Technical Background Report 2013 (Table A2.1)

Country	Mean Air Emissions, t
Ghana	52
Sudan	45
Tanzania	34
Burkina Faso	26
Mali	15
Nigeria	15
Democratic Republic of Congo	11
Zimbabwe	9
Kenya	6
Mozambique	3
Togo	3

ANNEX H: Overview of the use of electrical and electronic equipment and e-wastes in SSA countries

Total Population, Estimated EEE Volume, Estimated E-waste Volume, ICT, Mobile Phone and Household Computer in SSA countries

Year 2012	Total Population		Urban Population		EEE Total		E-waste Total		EEE/ Capita Lower Bound	EEE/ Capita Upper Bound	E-waste/ Capita Lower Bound	E-waste/ Capita Upper Bound	SSA ICT Import		SSA ICT Export and Re-Export		Mobile Phone Lines		% HH with Computer
	Mn	%	Mn	%	Kiloton	%	Kiloton	%	Kg/Capita	Kg/Capita	Kg/Capita	Kg/Capita	US$ Mn	%	US$ Mn	%	Mn	%	%
Angola	20.8	2.3	12.5	3.6	115.0	5.8	73.8	5.8	5.5	9.2	3.5	5.9	-	0.0	-	0.0	9.8	1.8	7.1
Benin	10.1	1.1	4.6	1.3	14.6	0.7	9.1	0.7	1.4	3.2	0.9	2.0	23.2	0.1	0.4	0.0	8.4	1.6	3.6
Botswana	2.0	0.2	1.2	0.4	26.6	1.3	18.5	1.5	13.3	21.3	9.2	14.8	194.5	1.2	11.5	0.8	3.1	0.6	11.0
Burkina Faso	16.5	1.8	4.5	1.3	22.6	1.1	14.0	1.1	1.4	5.0	0.9	3.1	43.8	0.3	0.1	0.0	10.0	1.8	2.1
Burundi	9.8	1.1	1.1	0.3	5.2	0.3	3.2	0.3	0.5	4.7	0.3	2.9	13.8	0.1	0.2	0.0	2.2	0.4	0.1
Cabo Verde	0.5	0.1	0.3	0.1	2.0	0.1	1.3	0.1	4.1	6.4	2.6	4.1	32.2	0.2	0.2	0.0	0.4	0.1	20.4
Cameroun	21.7	2.4	11.4	3.3	47.1	2.4	29.4	2.3	2.2	4.1	1.4	2.6	163.2	1.0	1.3	0.1	13.1	2.4	7.2
CAR	4.5	0.5	1.8	0.5	3.6	0.2	2.2	0.2	0.8	2.0	0.5	1.3	-	0.0	-	0.0	1.1	0.2	NA
Chad	12.4	1.4	2.7	0.8	20.0	1.0	12.5	1.0	1.6	7.3	1.0	4.6	-	0.0	-	0.0	4.4	0.8	0.4
Comoros	0.7	0.1	0.2	0.1	0.8	0.0	0.5	0.0	1.1	4.1	0.7	2.5	-	0.0	-	0.0	0.3	0.1	NA
Congo, D. Rep.	65.7	7.2	22.9	6.7	26.1	1.3	16.5	1.3	0.4	1.1	0.3	0.7	-	0.0	-	0.0	20.1	3.7	0.7
Congo Rep.	4.3	0.5	2.8	0.8	17.7	0.9	11.3	0.9	4.1	6.4	2.6	4.1	28.5	0.2	1.7	0.1	4.3	0.8	4.0
Côte d'Ivoire	19.8	2.2	10.3	3.0	37.3	1.9	23.1	1.8	1.9	3.6	1.2	2.2	259.4	1.6	23.9	1.6	18.1	3.3	1.8
Eritrea	6.1	0.7	1.3	0.4	4.2	0.2	2.6	0.2	0.7	3.1	0.4	1.9	-	0.0	-	0.0	0.3	0.1	0.3
Ethiopia	91.7	10.1	15.9	4.6	97.3	4.9	60.2	4.7	1.1	6.1	0.7	3.8	364.0	2.2	5.3	0.4	20.5	3.8	1.4
Gabon	1.6	0.2	1.4	0.4	22.5	1.1	15.7	1.2	13.8	15.9	9.6	11.1	50.6	0.3	1.4	0.1	2.9	0.5	7.6
Gambia	1.8	0.2	1.0	0.3	3.3	0.2	2.0	0.2	1.8	3.2	1.1	2.0	5.6	0.0	0.2	0.0	1.5	0.3	5.7
Ghana	25.4	2.8	13.3	3.9	77.3	3.9	48.6	3.8	3.0	5.8	1.9	3.6	784.5	4.8	7.2	0.5	25.6	4.7	13.8
Guinea	11.5	1.3	4.1	1.2	11.6	0.6	7.2	0.6	1.0	2.8	0.6	1.7	70.8	0.4	0.4	0.0	4.8	0.9	1.5
Guinea Bissau	1.7	0.2	0.7	0.2	1.0	0.1	0.6	0.1	0.6	1.4	0.4	0.9	2.0	0.0	-	0.0	1.0	0.2	NA
Guinea, Equat.	0.7	0.1	0.3	0.1	23.1	1.2	16.5	1.3	31.3	79.0	22.4	56.5	-	0.0	-	0.0	0.5	0.1	NA
Kenya	43.2	4.7	10.5	3.1	71.4	3.6	44.4	3.5	1.7	6.8	1.0	4.2	826.7	5.1	70.6	4.8	30.7	5.7	3.6
Lesotho	2.1	0.2	0.6	0.2	3.7	0.2	2.3	0.2	1.8	6.4	1.1	4.0	43.4	0.3	42.9	2.9	1.5	0.3	NA
Liberia	4.2	0.5	2.0	0.6	2.6	0.1	1.6	0.1	0.6	1.3	0.4	0.8	-	0.0	-	0.0	2.4	0.4	NA
Madagascar	22.3	2.4	7.4	2.2	20.2	1.0	12.5	1.0	0.9	2.7	0.6	1.7	47.4	0.3	-	0.0	8.8	1.6	1.4
Malawi	15.9	1.7	2.5	0.7	17.8	0.9	8.5	0.7	1.1	7.1	0.5	3.4	93.0	0.6	3.7	0.3	4.6	0.9	4.0
Mali	14.9	1.6	5.3	1.5	16.4	0.8	10.1	0.8	1.1	3.1	0.7	1.9	69.7	0.4	2.1	0.1	14.6	2.7	6.2
Mauritania	3.8	0.4	1.6	0.5	7.1	0.4	4.4	0.3	1.9	4.5	1.2	2.8	-	0.0	-	0.0	4.0	0.7	3.0
Mauritius	1.3	0.1	0.4	0.1	17.3	0.9	11.9	0.9	13.4	42.5	9.2	29.3	261.1	1.6	20.2	1.4	1.5	0.3	44.7
Mozambique	25.2	2.8	9.8	2.9	24.7	1.2	15.3	1.2	1.0	2.5	0.6	1.6	178.0	1.1	0.2	0.0	9.1	1.7	4.0
Namibia	2.3	0.2	0.4	0.1	15.2	0.8	9.9	0.8	6.7	37.1	4.4	24.1	202.3	1.2	27.4	1.9	2.1	0.4	13.0

Year 2012	Total Population		Urban Population		EEE Total		E-waste Total		EEE/ Capita Lower Bound	Upper Bound	E-waste/ Capita Lower Bound	Upper Bound	SSA ICT Import		SSA ICT Export and Re-Export		Mobile Phone Lines		% HH with Computer
	Mn	%	Mn	%	Kiloton	%	Kiloton	%	Kg/Capita	Kg/Capita	Kg/Capita	Kg/Capita	US$ Mn	%	US$ Mn	%	Mn	%	%
Niger	17.2	1.9	8.6	2.5	12.8	0.6	7.9	0.6	0.7	1.5	0.5	0.9	38.2	0.2	3.8	0.3	5.4	1.0	1.5
Nigeria	168.8	18.5	84.8	24.8	420.4	21.0	263.0	20.6	2.5	5.0	1.6	3.1	2,958.4	18.1	3.4	0.2	112.8	20.8	9.3
Rwanda	11.5	1.3	2.2	0.6	14.0	0.7	8.7	0.7	1.2	6.3	0.8	3.9	153.5	0.9	1.4	0.1	5.7	1.1	2.0
Sao Tome	0.2	0.0	0.1	0.0	0.4	0.0	0.2	0.0	2.0	3.2	1.3	2.0	3.7	0.0	0.0	0.0	0.1	0.0	NA
Senegal	13.7	1.5	5.9	1.7	24.9	1.2	15.5	1.2	1.8	4.2	1.1	2.6	137.3	0.8	11.6	0.8	11.5	2.1	8.0
Seychelles	0.1	0.0	0.0	0.0	1.9	0.1	1.4	0.1	21.5	39.8	16.2	30.0	17.9	0.1	0.2	0.0	0.1	0.0	45.0
Sierra Leone	6.0	0.7	2.4	0.7	7.9	0.4	4.9	0.4	1.3	3.3	0.8	2.1	-	0.0	-	0.0	2.2	0.4	NA
Somalia	10.2	1.1	3.9	1.1	0.0	0.0	0.0	0.0	-	-	-	-	-	0.0	-	0.0	2.3	0.4	NA
South Africa	52.3	5.7	32.6	9.5	508.7	25.4	339.3	26.6	9.7	15.6	6.5	10.4	7,952.0	48.6	1,038.5	70.2	68.4	12.6	21.5
South Sudan	10.8	1.2	2.0	0.6	0.0	0.0	0.0	0.0	-	-	-	-	-	0.0	-	0.0	2.3	0.4	NA
Sudan	37.2	4.1	12.4	3.6	75.2	3.8	47.0	3.7	2.0	6.1	1.3	3.8	308.4	1.9	0.2	0.0	27.7	5.1	14.0
Swaziland	1.2	0.1	0.3	0.1	5.6	0.3	3.6	0.3	4.6	21.6	2.9	13.7	58.6	0.4	1.0	0.1	0.8	0.1	10.7
Tanzania	47.8	5.2	13.0	3.8	69.1	3.5	42.9	3.4	1.4	5.3	0.9	3.3	374.7	2.3	8.4	0.6	27.2	5.0	NA
Togo	6.6	0.7	2.6	0.7	6.5	0.3	4.0	0.3	1.0	2.5	0.6	1.6	72.2	0.4	2.1	0.1	3.3	0.6	2.3
Uganda	36.3	4.0	5.8	1.7	47.6	2.4	29.5	2.3	1.3	8.2	0.8	5.1	344.0	2.1	184.0	12.4	16.4	3.0	NA
Zambia	14.1	1.5	5.6	1.6	22.3	1.1	13.8	1.1	1.6	4.0	1.0	2.5	191.7	1.2	3.5	0.2	10.5	1.9	2.4
Zimbabwe	13.7	1.5	5.4	1.6	6.5	0.3	4.0	0.3	0.5	1.2	0.3	0.8	-	0.0	-	0.0	12.6	2.3	5.9
WB Adjust.													*4,694.2*		*565.7*		-		
SSA Total	912.2	100.0	342.6	100.0	1,999	100.0	1,275	100.0					21,062.6		2,044.9		541.3	100.0	7.80
Africa Total													23,000.0						
Weighted av.					145		92		2.2	5.9	1.4	3.8							

Column Specific Legend: < 1 | ≥ 1 & < 4 | ≥ 4

Source: Adapted from WDI (2014); STEP Initiative website: <www.step-initiative.org>; and UNCTAD Stat: <http://unctad.org>.

ANNEX I: INTERNATIONAL AND NATIONAL NON-GOVERNMENTAL STAKEHOLDER AND COUNTRY PARTNERS

	Name	Agency	Telephone & Email address
1	M'bra Kouassi Richard	ONG Jeunes Volontaires pour L'environnement-CI	mbrafresco@yahoo.fr (+225) 47304041
2	Oumar Diaoure Cisse	Direction Nationale Assainissement, Mali	oumar.cisse@graduateinstitute.com +22376473520
3	Gloria T. Machuve	Dir-Forensictona GCLA - Tanzania	gmachuve2000@yahoo.com 255-954395819
4	John A. Pwamang	EPA-Ghana	john.pwamang@epa.gov.gh 0242803284
5	Aliou Bakhoum	ONG la lumicie	bakhoumaliou200@yahoo.fr 0022177522-8613
6	Esssobiyou Thiyu Kohoga	Direction of Environment Togo	essobiyou@hotmail.com
7	Felix Kwame Mote	EPA-Ghana	felix.mote@hotmail.com/02443434233
8	Ransford Sekyi	EPA-Ghana	rsekyi@yahoo.com/0244638939
9	Dr. Edith Clarke	MOH/GHS	edith.clarke@ghsmail.org /0243629870
10	Richard Mwendandu	MEW & NR, Kenya	rj_mwendandu@yahoo.com
11	Ajala Oluwatoyin A.	Federal Ministry of Environment, Nigeria	toyluv98@yahoo.com /+254 722744683
12	Ebenezer Quarcoo	GIZ	ebenezer.quarcoo@giz.de /0244648849
13	Shallovern Srodah	AMSAMA	gajaa2000@yahoo.com /0244645019
14	Julius Foil	UG-School of Public Health	jfobil@ug.edu.gh /0243462514
15	Emmanuel Appoh	EPA Ghana	eeappoh@yahoo.com /0501301466

16	Kwame Mensah	WERENGO	ekam2000gh@gmail.com/0543521020
17	Humphrey Kasiya Mwalw	Zambia Environmental Management Agency	wkmwale@zema.org.zm /+260966917615
18	Zougouri Tidiani	Ministere Environnement, Burkina Faso	tidianezougouri@yahoo.fr/+26670261066
19	Silvani Mng'anya	Agenda Tanzania	semnganya@gmail.com /+255762986953
20	E. Appah-Sampong	EPA	ebenezer.appah-sampong@epa.gov.gh 0501301746
21	Frank Rompaey	UNIDO	f.vanrompaey@unido.org /0501323016
22	Peace Gbeckor-Kove	EPA	peace.gbeckorkove@epa.gov.gh /0501301529
23	Dr. Sam Adu-Kumi	EPA	adukumisam@yahoo.com /sam.adu-kumi@epa.gov.gh /0244635213
24	Zakaria Yakubu	CARE/KASA	yakubu.zakaria@co.care.org /0244330957
25	Nii Adjetey Mensah	ASMAN	0208616136
26	Angelina Ama Mensah	EPA	0302664097
27	Kira Traore	Blacksmith Institute	kira@blacksmithinstitute.org
28	Christiana Badoo	Green Advocacy Ghana	christie77gh@yahoo.com /0244663916
29	Dr. J. R. Fianko	GAEC	jrfianko@yahoo.com /0244746180
30	Yaw Amoyaw Osei	Green Advocacy Ghana	wayama59@hotmail.com /0243223864
31	E. Odjam-Akumatey	Ecological Restorations	eaodjam@gmail.com /0267370240
32	Gifty Aboagye Mensah	EPA	giftygam@hotmail.com /0244038644

33	Kika Delphine Tizie	Ministry of Environment	kikadelphine@gmail.com /023777834120
34	Mrs. Fagamou Sy	Ministry of Environment	mamesydiop@yahoo.fr /00221775547839
35	Say Venance	Ministry of Environment	martialvs@yahoo.com
36	Cheikh Tidiane Athie	NGO ACDEV Senegal	acdev@orange.sn /00221775695626
37	Godfred Ameyaw	Oil Watch	0243242885
38	Charles Agboklu	KASA	relbonet@gmail.com /0244616768
39	Mac Bubuama	KASA	mbubuama@yahoo.com /0244107883
40	Samuel Kpodo	AMA	kpodosk567@yahoo.com /0244699554
41	Samuel Obiri	KASA	obirisamuel@gmail.com /0244708322
42	Lambert Faabeluon	EPA	0501301406
43	Herve Delsol	EU Delegation	0544703201